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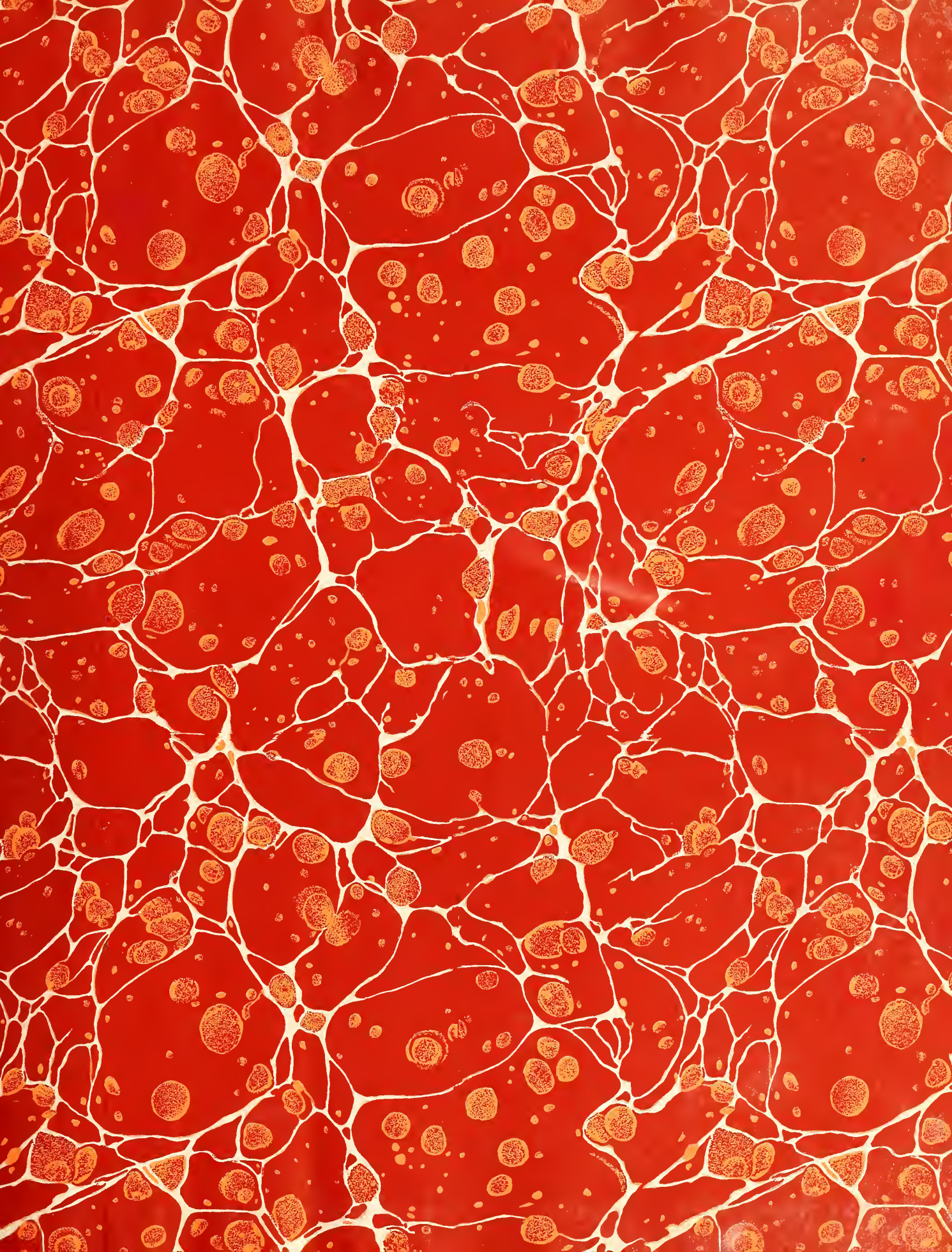

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WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., AUGUST 8, 1917. No. 1

SPRAY POTATOES.

Unsprayed Crop Threatened Unless Late Blight Is Controlled by Use of Bordeaux Mixture.

Potato late blight, a fungous disease, capable of causing enormous destruction, has appeared in several States from Maine to New Jersey and West Virginia, according to the United States Department of Agriculture. The blight occurred early this year and reports show that it is more prevalent than usual. While in some fields the blight is already beyond control, prompt spraying with Bordeaux mixture will, in most cases, still be effective, the specialists advise. Unless potato growers spray thoroughly with Bordeaux mixture, they fear that the large potato crop that has been promised will not be realized, as late blight, if uncontrolled, is capable of reducing the national crop at the rate of 2,000,000 bushels per day.

Tops Must Be Kept Healthy.

Potatoes in the Northern States are just beginning to form tubers. To produce a large crop the tops must be kept healthy till frost, as the tubers increase in size most rapidly during the last weeks of the season. The late blight kills the tops and causes the tubers to rot in the ground. The blight starts in a few centers in the field where diseased potatoes were planted. Brown spots develop on the leaves and a whitish mildew appears on their underside. Frequent rains and warm, muggy weather furnish ideal conditions for the development of the blight under which the foliage blights rapidly, the leaves hang blackened and dead, and the tubers begin to rot. Dry and hot weather, on the other hand, tends to check the progress of the blight, but growers should spray immediately and not trust their crops entirely to improvement in weather conditions.

As an effective preventive of late blight Bordeaux mixture has proved its value for 25 years. Every grower from Maine to Michigan and south to Virginia is urged to spray at once and repeatedly.

How to Make Bordeaux Mixture.

Home-made Bordeaux mixture is best. Use

Bluestone (copper sulphate)	pounds..	4
Quicklime	do....	4
Water	gallons..	50

Prepare the copper sulphate by suspending it in a gunny sack just below the surface of several gallons of water in a clean barrel. When the sulphate is dissolved, which requires three or four hours, remove the sack and stir into the barrel enough additional water to make exactly 25 gallons of the copper solution.

Prepare the lime by slaking it slowly and thoroughly in a clean barrel, strain, and add enough additional water to make exactly 25 gallons of lime milk. Stir thoroughly.

Pour the two ingredients together into another barrel, or, better, directly into the spray tank, if it will hold 50 gallons. It is highly important to stir the mixture very thoroughly and to strain both ingredients before they are combined, as otherwise clogging of the spray nozzles might result. Use copper or bronze wire strainer of 18 meshes to the inch. Do not put copper sulphate or Bordeaux mixture into tin or iron vessels; use wood or copper containers. Mix the Bordeaux as needed and apply at once. It is never so good after it has settled.

Where poisons such as arsenate of lead are to be combined with Bordeaux mixture, add the poison after the two solutions are mixed. Then stir well.

Stock Bordeaux Solutions.

Those who use Bordeaux mixture frequently and in quantity will find it convenient to keep concentrated stock solutions on hand, as these keep indefinitely if the water which evaporates is replaced.

Build an elevated platform to hold the barrels. The night before the day you wish to commence spraying, suspend 50 pounds of copper sulphate to dissolve in a 50-gallon barrel of water. Slake 50 pounds of lime in another barrel. Add water to make 50 gallons of lime milk. When Bordeaux mixture is needed, stir both stock barrels well and take 4 gallons from each stock barrel. Dilute the copper sulphate in one barrel by adding enough water to make 25 gallons. Dilute the lime milk in another barrel by adding enough water to make 25 gallons. Stir each thoroughly. Combine the two as in previous directions. Thorough agitation is essential in making good Bordeaux mixture.

Weeding will seem easy next winter when mother serves those home-canned string beans.

PRESERVING.

Fruits Saved by This Process as Well as by Canning—Jars Not Needed as Containers.

The fruits which are so plentiful in many parts of the country this season may be saved by preserving as well as by canning. Preserves and similar products differ from canned fruit in that much larger proportions of sugar are used in preparing them, in that they are cooked longer, and in that special sterilization in containers is not necessary in all cases. Because of this many of these products may be packed in large-necked bottles, glasses, etc., and sealed with cork, paraffin, etc. Tight-sealing jars thus may be saved for canning.

Preserves, jams, marmalades, etc., differ among themselves in the proportion of sugar used, the degree of cooking employed, and the consistency of the finished product. Though less economical to prepare than canned fruit because of the relatively large amounts of sugar used, preserves and similar preparations furnish a variety in the ways of putting up fruits and make valuable additions to the winter ration of sweet foods.

When preserves are properly made, the fruit keeps its form, is plump, tender, clear, and of good color, the surrounding sirup being also clear and of proper density. In making preserves the object is to have the fruit permeated with the sirup, and this can be accomplished only by careful procedure. In order to prevent shrinkage, it is necessary to put fruit at first into this sirup and increase its density slowly by boiling the fruit in sirup or by alternately cooking and allowing the product to stand immersed in the sirup. If at any time the fruit shrivels or wrinkles, the sirup should be made less dense by the addition of water.

To make these sirups boil sugar and water together in the proportion given below until sugar is dissolved. Strain all impurities out of the sirup before using.

Sirup No. 1, use 14 ounces sugar to 1 gallon of water.
Sirup No. 2, use 1 pound 14 ounces sugar to 1 gallon of water.
Sirup No. 3, use 3 pounds 9 ounces sugar to 1 gallon water.
Sirup No. 4, use 5 pounds 8 ounces sugar to 1 gallon water.
Sirup No. 5, use 6 pounds 13 ounces sugar to 1 gallon water.

Measurements.—If no scales are available, the amounts of sugar may be approximated

by measuring, using 1 pint for each pound and 16 tablespoons to the half pint. For the recipes given herewith all measurements are level and the standard measuring cup holding ½ pint is used.

For fruits like peaches, pears, watermelon rind, etc., preserving should be begun in sirup not heavier than No. 3. Juicy fruits like berries can be put at the beginning into a heavier sirup, about No. 4, because the abundant juice of the fruit quickly reduces the density of the sirup before shrinking can take place. When the preserves are finished and ready for packing, the density of the sirup should have reached that of No. 4 or No. 5. Sirup made with very acid fruits can be made heavier than pure sugar sirups without danger of crystallization because the acid inverts some of the sugar, changing it to a form which will not crystallize readily.

Since long cooking injures the color and flavor of fruits, it is desirable to cook delicate fruits such as berries for as short a time as possible. Cooling rapidly after cooking gives preserves a better color and flavor than can be secured when they are packed hot. Standing immersed in sirup after cooking also helps to plump them. If berry preserves are covered for a brief time before removing from fire and the vessel left covered while cooling the product will be more plump.

For cooling, shallow enamel trays or pans are desirable. Tin can not be used because fruits will discolor in it. Pack preserves cold, bring the sirup in which they have stood to boiling, test, and if of proper density pour over the packed preserves, paddling to remove all air bubbles. If not of the right weight for packing, the sirup must be concentrated by boiling. To seal properly and to insure safety from mold it is necessary to process all preserves. Since they can be sterilized below the boiling point, processing at simmering (89° C.) for 30 minutes is preferable to boiling, because this temperature will give better color.

The general directions given may be applied to practically any fruit to make preserves. For additional convenience, however, the following specific recipes are given for products most likely to be abundant during the remainder of the season:

Watermelon Preserves.

Cut 1 pound watermelon rind into inch squares. Allow to stand overnight in clear water. Drain and cover with about 30° sirup (2 cups sugar to 1 quart water). Boil for 25 minutes. Let stand over night immersed in sirup. Next morning add juice of half a lemon and three slices of lemon additional for each pound. Cook until transparent (about 1 hour). Let stand until cold. Pack, add the sirup, garnishing with slices of lemon, cap, and process.

Gingered Watermelon Rind.

To each pound of rind cut into 1-inch squares add 2 quarts of water and 1 ounce slaked lime. Let stand in limewater overnight. Next morning drain and let stand 1 to 2 hours in fresh cold water. Drain well and boil rapidly in strong ginger tea (1 ounce ginger to 1 quart water) for 15 minutes. Drain, put into a 30° sirup made by using 1 pint strained ginger tea with 1 quart water and 1½ pounds of sugar. Cook until tender and transparent (about 1½ hours). After boiling a half hour add half a lemon sliced thin. Place in shallow pans to cool, having the rind well covered with sirup. When cool arrange pieces attractively in jars, cover to overflowing with sirup. Cap, clamp, and process.

The packing sirup for preserved and gingered watermelon rind (also figs) should be between No. 5 and No. 6.

WATCH FOR INSECT PESTS.

The desirability of referring immediately to Federal or State entomologists the occurrence of any strange insect which seriously attacks crops, is emphasized, in the opinion of entomologists of the United States Department of Agriculture, by the almost complete loss of the rice crop from 40,000 acres in Matagorda County, Tex., through the combined ravages of a hitherto unknown rice weevil and a wire worm. The occurrence of the pests in this region was brought to the attention of entomologists only recently, but it is believed that depredations have been going on for about three years, spreading from a small center. If the problem had been attacked when the pests first appeared, the losses of the present season probably would have been greatly reduced, entomologists say.

Studies of the weevil and worm now are being made by field agents of the Bureau of Entomology, and efforts will be made to perfect methods of combating the pest before next season.

The Bureau of Entomology urges all persons who observe damage to crops by insects to communicate with it, sending samples of the pests if possible.

In summer it is advisable to eat fruits and vegetables freely. In the first place they commonly are plentiful and cheap then; second, they are better for you in warm weather than heavier foods; third, they are produced closer to your home, thus requiring less transportation; fourth, they may, to a certain extent, take the place of more concentrated foods which stand long shipment better and which are needed for the soldiers and the people of other countries.

TOMATO LEAF SPOT.

Resin Fish-Oil Soap Added to Bordeaux Mixture Promises a Method of Control.

The addition of resin fish-oil soap to Bordeaux mixture promises to control tomato leaf spot, although Bordeaux alone has not prevented losses.

Plant-disease specialists in the United States Department of Agriculture describe the leaf-spot disease as one which causes defoliation of the plants, greatly reduced yields, and inferior fruit. Small circular spots develop on the leaves and sometimes on the stems. They first appear as tiny dots, having a dark or water-soaked appearance. Gradually they enlarge and turn brown, and the leaves shrivel and drop, beginning at the base of the plant.

Making the Solutions.

Bordeaux mixture is best prepared by making stock solutions of the separate ingredients. The copper sulphate should be mixed in the proportions of a gallon of water, preferably soft water, to a pound of the sulphate crystals and there should be 5 gallons of this stock solution for each acre of tomatoes to be sprayed. The crystals should be dissolved in the usual way by suspending them in a burlap bag which touches the surface of the water; the solution should be well stirred.

The lime suspension, or milk of lime, is also a pound to a gallon, but only three-fourths as many gallons are needed as of the copper solution. Thus, if there are 20 gallons of the copper solution, there would be only 15 of the lime milk. The lime should be slaked gradually by pouring the water on in small quantities and at intervals until all has crumbled. Finally larger quantities are added with constant stirring until the volume is completed. If quicklime can not be had and hydrated lime is available, use as many pounds of the latter as of copper sulphate, but do not increase the quantity of water. Air-slaked lime must not be used.

The resin fish-oil soap suspension is made with a pound of soap to a gallon of water. As with the lime, only three-fourths of the quantity of water is necessary. Hot water will hasten the dissolving of the soap. To avoid the formation of troublesome lumps the water must be added slowly at first with constant stirring.

Preparing the Mixture.

For general commercial operations two 50-gallon barrels with outlets at the bottom are placed on a raised platform so their outlets will be higher than the top of the spray tank. To make 100 gallons measure 8 gallons of the copper-sulphate solution into one

barrel and 6 gallons of the milk of lime into the other. Add to each enough water to make 47 gallons, stirring the contents thoroughly, and then let the two solutions run with equal rates into a trough leading to the spray tank. At the same time add 6 gallons of the resin fish-oil soap solution very gradually and in a small stream through the spray-tank strainer along with the copper-lime mixture. The copper sulphate and lime should be mixed before the soap is added.

Modifications of the method may be used for smaller quantities.

Applying the Spray.

A traction sprayer such as that employed in the spraying of potatoes may be used except where the vines are too large. There should be three nozzles for each row, one to spray downward and two on the sides spraying toward each other. These lateral nozzles should be set low and pointed slightly up to get the spray on the underside of the leaves. Thorough spraying, repeated at from seven to ten day intervals, is necessary for the best results and must be continued through August. When the plants are too large for a traction sprayer in the rows, roadways should be opened and the spraying continued with long lines of hose.

ORGANIZE FARM BUREAUS.

One of the greatest needs of the present war, according to the United States Department of Agriculture, is the effective organization of agricultural forces. The department advocates the formation of county farm bureaus as an effective means of securing needed local organization.

The county farm bureau, says the department, helps to unify the efforts of existing farmers' organizations and to strengthen their work. The bureau is likened to a rural chamber of agriculture, corresponding in many of its functions to a city chamber of commerce. The farm bureau grew out of a similar need for effective agricultural organization to meet rural problems, and it has been described as organized self-help. It started as an outgrowth of the work done by county agricultural agents, but it has become the local federating agency through which groups of rural people may find expression.

The farm-bureau plan, as seen by the United States Department of Agriculture, provides for a representative membership, with committees and a county council. The membership should be general over the county, and at least four-fifths of it should be made up of active farmers. Those who are interested in either the formation or the development of a farm bureau should write to the extension director at the State agricultural college and secure advice as to how to proceed.

JAMS, BUTTERS, ETC.

Small Fruits Not Firm Enough for Preserves May Be Used—May Be Put into Stone Jars.

Jams are made of small fruits which are not whole or firm enough to use for preserves. No attempt is made to retain the original shape of the fruit, the finished product having a uniform consistency. Marmalades have a more jellylike texture and thin slices of the fruit appear suspended throughout the mixture. In fruit butters and pastes frequently less sugar is used than in jams and the product is more concentrated. Conserves may be made of large or small fruits, cooked in the same manner as jams. Sometimes nuts are added.

In stirring jam use a wooden spoon or paddle, moving it across the center of the vessel first one way and then the opposite and next around the pan, gently moving the mixture from the bottom of the pan, being careful not to stir rapidly or beat. Cook the jam to 105° C. or 221° F.

If a cooking or chemical thermometer is available more accurate results can be obtained by its use. The proper condition of the cooked fruit can be determined approximately, however, without the use of such instruments. For determining when they are finished most jams may be given the same test as finished jelly; that is, when a little is held a moment and cooled in a spoon, it will not pour from the side of the spoon but will fall in a sheet or flake. This is not true of jams made of peaches, cherries, strawberries, and other fruits not containing pectin, the jellying principle. When using such fruits, cook until the jam is of the desired consistency.

Well-glazed hermetically sealed stoneware jars with capacity of 8 ounces and up are suitable and attractive containers for packing jams, marmalades, etc. Large-necked bottles, glasses, etc., also may be used and sealed with cork, paraffin, etc.

Berry Jam.

In selecting berries for jam the ripe, broken ones will give fine color and flavor, but about one-half the quantity should be slightly underripe. This is necessary to give a jellylike consistency to the product. Cooking in small quantities also helps to retain color and flavor. Weigh the berries and allow three-fourths of a pound of sugar to each pound of fruit. Rapid cooking with constant care is essential.

Peach Jam.

2½ pounds peaches cut into small pieces.
1 pound sugar.
6 whole allspice.
1 cracked peach seed.
1 inch ginger root.
½ cup peach juice.
½ teaspoonful whole cloves.
1 teaspoonful cinnamon bark.
1 sprig mace.

(Tie spices in cheesecloth bag.)

Cook all together until thick as marmalade and clear (to 105° C. or 221° F.). Pack hot in hot jars and seal at once or process.

Grape Jam.

Select grapes about one-half of which are underripe rather than entirely ripe. Wash and stem the fruit. Separate the pulp from the skins. Cook pulps for 10 minutes and press through a sieve or colander to remove seeds. Add three-fourths cup of water to each quart of skin and boil until tender. Then put the pulp and skins together and measure. For every quart of the mixture use 1 pound of sugar. Bring the fruit to a boil, add the sugar, and cook, stirring frequently until it will give the jelly test or reaches 105° C. or 221° F. Pour into sterilized jars and process as for jam.

Damson Plum Conserve.

4 pounds plums.
3 pounds sugar.
1 pound shelled nuts.
2 oranges.
1 pound raisins.

Remove the seeds and chop the plums. Peel the oranges and slice thinly one-half of the peel. Discard the other peel and the seeds. Mix chopped plums, orange pulp, sliced peel, sugar, and raisins. Cook all together rapidly until bright and thick as jam. Add nuts 5 minutes before removing from the fire. If a thermometer is available, cook to 102° C. or 215° F. Add the nuts and cook to 103° C. or 217° F. Remove from fire, cool, and pack into jars.

Gingered Pears.

Use pears not quite ripe, peel, core, and cut into thin slices. To 8 pounds of pears allow 6 pounds sugar, 1 cup of water, and the juice of 4 lemons. Cut the lemon rinds into thin strips and add them. Also add one-eighth pound of ginger root cut into pieces. Simmer until thick as marmalade. Pack like peach jam.

Apple Butter.

Measure the apples, wash to remove dirt, slice into small pieces, and for each bushel of apples add 4 gallons of water; boil until the fruit is soft, then rub through a screen or sieve.

To the pulp from each bushel of apples add 2 gallons of cider that has been concentrated to one-half its original volume. Bring to a boil and add 12 pounds of sugar. Continue the cooking and just before the consistency desired for finished apple butter is reached add spices, cinnamon, and cloves according to taste. When the butter is as thick as desired, place in sterilized containers and seal immediately.

Corn bread made with skim milk has much more food value than when made with water, because the milk contains protein which is a tissue builder.

RECLAIMING THE SWAMP.

Thousands of Acres May Be Drained Profitably and Made Available for Crop Production.

There are tracts of wet land varying in area from a few hundred to thousands of acres in many States in the humid regions. In almost every tract there are usually a few owners who feel that these lands would be productive if drained. However, these owners generally constitute a minority. As the lands many times can be drained economically only as one body, the first task confronting those desiring to drain is to enlist the interest of other owners. The easiest way to accomplish this is by informing all landowners of what has been accomplished by drainage in other sections. References to a few illustrations like the following will arouse interest.

Opposition to Drainage Overcome.

An area involving 200,000 acres recently has been drained. Before drainage much of the land was heavily timbered and the greater portion swamped so that it was useless for agriculture. Almost anywhere in the district, land could be bought for a few dollars an acre. Many of the landowners were bitterly opposed to drainage, but this opposition was gradually overcome. Shortly after the construction of the drains was started, the owners began to notice benefits, and now those who opposed reclamation are among its strongest advocates. A recent letter received by the department from a landowner reads in part as follows:

"Many thousands of acres have gone rapidly into cultivation, with population and production increasing amazingly. Many hundreds of houses and barns have been built per annum for the past several years. Lands that were in swamps and timber a few years ago have lately been producing 75 to 95 bushels of corn per acre and this year $75 to $125 worth of cotton per acre; and miles of good roads where were swamps and cut-over timber. Certainly, our efforts and expenditures have been justified beyond all expectations."

Thus by drainage was swamp land transformed into highly productive corn, cotton, and alfalfa land.

Examples of Profitable Drainage.

A heavily timbered tract of 5,300 acres in Illinois was almost annually overflowed by the Mississippi River. The average value of the land was $13 per acre, including the timber. After drainage was completed, land could not be purchased for $150 per acre. The cost of drainage averaged about $16 per acre. While all the land is not yet cleared, in 1914 over 173,000 bushels of corn were harvested which was disposed of at 70 cents a bushel. The value of the crop for this one year more than paid the cost of draining, and in 1915 a larger crop was harvested than the year preceding.

In Wisconsin a section of useless swamp was transformed by drainage into some of the most valuable sugar-beet lands in the State. In another State a landowner in referring to a certain section of land said: "That was the worst land we had; it was a swamp in which our cattle frequently mired and it could never be cultivated. Now it is the best land we have in this county and can not be bought for $150 per acre."

Yields on Reclaimed Lands.

Along the Illinois River were 12,323 acres which were overflowed every year and on which the water remained so long after the river receded that owners did not average more than 2 crops in 10 years. Three thousand acres of the area formed a lake. Opposition to draining was bitter. When drainage was undertaken the average value of the land was $10 per acre; during the past year sales were made at $125 per acre, while many owners have refused $150. A landowner states that during good years he can harvest 42 bushels of wheat and 2 tons of clover hay per acre in one year. During an average year 30 bushels of wheat or 70 bushels of corn per acre are not unusual. The 3,000 acres which formed the lake now form the best corn land, yields of 90 bushels per acre being not uncommon.

CANNED TOMATO SAUCE OR PURÉE.

Since tomatoes contain a very high percentage of water, it often is desirable to can only concentrated tomato products. This is true, especially when cans or jars are difficult to obtain. A delicious concentrated tomato sauce may be made and canned as follows, says the United States Department of Agriculture: Small or broken tomatoes and large tomatoes unsuitable for canning whole may be used in this recipe.

Method Described in Detail.

Cut the tomatoes into fairly small pieces and add one large-sized onion chopped and one cup chopped sweet red pepper to one gallon tomatoes. Cook until tender. Put through a sieve and add a mixture of one-third salt and two-thirds sugar in a proportion of one teaspoonful to each quart of the mixture. Cook until the consistency of ketchup, stirring constantly. Pack hot into sterilized jars or bottles. Adjust rubber and cap; place the containers on a false bottom in a vessel of water sufficiently deep to reach almost to their tops and allow to remain at a boiling temperature for 25 minutes. Remove jars from the water bath and tighten the lids immediately.

KANSAS CANS.

Sunflower State Sets Example in Food Conservation—Work of Community Clubs.

While many States may be doing more effective work than Kansas in the general program of food conservation, reports to the States Relations Service of the United States Department of Agriculture indicate that few States have made such marked response to the patriotic appeals for more food.

This is shown in an increase from 11 home canning clubs last year to 200 this year, while the individual clubs have grown within themselves. For example, the Kansas champion club of 1916—the Glenwood mother-daughter club of Bonner Springs—went from 58 members last year to 400 this year.

The club is composed of a mother and daughter from each household represented. Where there was no daughter a son of the family helped to compose a team of food-conservation workers, these boy teams making an average profit on their products somewhat higher than the average of all.

Record of One Club.

This Kansas champion club of 58 members, made up of 29 teams, canned nearly 10,000 quarts of food last year, or, to be exact, 9,838, of which 4,520 were fruit, 4,118 were vegetables, 84 soups, 184 meats, and 932 jellies. One of the teams of mother and daughter put up 829 quarts, including not only 57 varieties, but 253. The smallest number of varieties put up by any one team was 21; the average number was 82.

The total value was $3,840.46, which cost to produce $1,420.32, leaving a net profit of $2,420.14. The average cost of production of this food was 14 cents a quart and the average value of the finished product was 38 cents, leaving an average profit of 24 cents on each quart.

Only one of the teams lost money on the season's work, according to the figures which were furnished by the team itself. It put up 160 quarts of food, however. One team made a profit of $200.08 over the cost of production, having put up 606 quarts, mostly vegetables, at a cost of $68.87, with an aggregate value of $268.95.

What the Record Means.

This club's work, according to the Department of Agriculture, indicates what can be done by community effort toward food preservation, especially through the competitive idea with the teams within the club in friendly contest, and the club as a whole in competition with other similar clubs in the State. Conjectures of this year's canning output of this club, based on the pro-

duction of last year, when 58 persons put up 9,838 quarts, might foretell, for the 400 members, some 68,000 quarts of food. But if the club increases its output at the same rate that it increased last year over 1915, the total will be 83,300 quarts.

BUTTER FAT AND INCOME.

Productive Cows Pay—Income Over Feeding Costs Advances Rapidly with Increased Butter-fat Yields.

It is well known that profitable cows must comparatively large producers, yet few people realize fully the remarkable rate at which profits advance as production increases, say dairying specialists of the United States Department of Agriculture. The following figures, obtained from the records of 1,668 cows in various cow-testing associations, show how rapidly with increased production of butter-fat income advances over cost of feed.

Production and profit.

Average butter-fat production (pounds):	Average income above feed cost.
100	$4
150	18
200	29
250	43
300	56
350	68
400	88
450	108

As butter-fat production increased from 150 pounds to 300 pounds, income over cost of feed advanced from $18 to $56, or as production doubled income above feed cost increased three times. As butter-fat production increased from 150 pounds to 450 pounds income over cost of feed advanced from $18 to $108, or as production trebled income above feed cost increased six times. If no expenses except the cost of feed are considered, the cow that produced 450 pounds of butter fat was as profitable as 27 cows of the first group, whose average production was 100 pounds. If labor and miscellaneous expenses also could be taken into consideration the results would be much more striking.

A further study of the records showed that the cost of roughage was about the same for all groups, but that the total cost of feed was somewhat greater for the more productive cows. The increased profit should therefore be credited in part to better feeding, but apparently it was more largely due to better cows. The present high cost of feed will eliminate the low-producing cow, or it must eventually eliminate the dairyman who keeps such cows. More cows are needed, but better cows are needed more. Certainly it pays to keep good cows and to feed them well.

JELLY MAKING.

Some Fruits Are Better for Jelly Than Others—Pectin and Acid Are Both Essential.

A good jelly should be bright, of good color, and clear. When removed from the glass, it should retain the shape of the mold. The jelly can be cut with a distinct cleavage, retaining the angles where cut. It should sparkle and be tender enough to quiver without breaking.

Fruit for Jelly Making.

The juice from certain fruits, such as grape, apple, crabapple, orange, and currant is better suited for making a natural fruit jelly than juices from other fruits. The juices from these fruits contain the properties necessary for jelly making. The best fruits for jelly making contain pectin and acid. Pectin, the fundamental jelly-making substance, does not exist in some fruits in sufficient amount to make jelly without the addition of pectin from some other source. The peach, strawberry, and cherry are examples of fruits which contain acid but are lacking in pectin. Pear and quince contain pectin but are deficient in acid. If the missing property be added to each of these fruits, a jelly with the color and flavor of the fruit selected can be made.

Extracting the Juice.

Wash such fruit as berries, grapes, and currants in running water and add 1 cup of water for each pound of fruit. For apples, quinces, and such hard fruits, wash, slice, and add 3 cups water to each pound of fruit. The fruit should be cooked until tender, a small quantity of water being added to help extract the juice. The fruit juice will flow more freely when heated than when cold, and the cooking develops the pectin. As soon as the fruit is tender the liquid should be squeezed through a cheesecloth and then be allowed to drip, without pressure, through a flannel jelly bag. Overcooking of the fruit is apt to result in a cloudy jelly. After cooling the juice to room temperature test it to determine the amount of pectin present. This test gives some idea of the proper proportion of sugar to juice. Add 1 tablespoon 95 per cent grain alcohol to an equal volume of cooled fruit juice and shake gently. The effect of the alcohol is to bring together the pectin in a jellylike mass. If a large quantity of pectin is present it will appear in one mass or clot when poured from the glass. This indicates that equal quantities of sugar and juice may be used. If the pectin does not slip from the glass in one mass, less sugar will be required. A fair proportion is ¾ cup of sugar to 1 cup of juice. If the pectin is thin and much separated, ½ cup of sugar allowed for each cup of juice will be sufficient.

Details to Be Observed.

Quantity of juice to cook.—The quantity of juice to be cooked at one time will depend upon the size of the vessel and the methods of heating available. The capacity of the vessel used should be four times as great as the volume of juice to be cooked. If the attempt is made to cook a large quantity of juice at one time over a slow flame, there will be a loss of color and a decrease in the yield, partly due to the destruction of the pectin.

When to add the sugar.—When the proportion of sugar to juice has been determined, measure the fruit juice and place over the fire to cook. When the juice begins to boil, add the sugar immediately and stir until the sugar is dissolved. By adding the sugar when the juice begins to boil, more time is given for the inversion of the sugar by the acids of the fruit and there is less danger of crystallization.

Cooking the jelly.—After the sugar has dissolved, the cooking should be as rapid as possible. Finished jelly can be obtained more quickly by rapid cooking. Long cooking will tend to darken the product and destroy the pectin, which will cause the finished jelly to be less firm.

Testing for the finished jelly.—A thermometer can be used to great advantage to show when the jellying point is almost reached. No exact temperature can be given, because the jellying point differs with different fruits, with the quantity of sugar used, and with the same fruits at different seasons. In using a thermometer for cooking apple jelly it has been noted that the temperature is seldom less than 105° C. or 221° F. or more than 106° C. or 223° F. With grape and currant jelly, between 106° C. and 107° C. or 223° F. and 224° F. will give the best results.

Since no definite temperature can be given for the finished jelly, the most convenient means of determining when it is finished is to test it with a spoon or paddle. Dip a spoon or wooden paddle in the boiling mass. Remove and cool by moving it back and forth for a few seconds and then allow the jelly to drop from it. As long as there is sirup present it will run or drop from the spoon. When the jellying point is reached, it will break from the spoon in flakes or sheets. When this jelly stage is reached, remove from the fire immediately and skim. Skimming at this point saves waste.

Filling glasses.—After skimming the jelly, pour at once into hot sterilized glasses and set aside to cool.

Cooling and sealing.—Cool as rapidly as possible, avoiding dust which will give contamination with mold. When the jelly is cold cover it with melted paraffin. By running a pointed stick around the edge of

the glass while the paraffin is still hot, a better seal can be obtained.

Storing.—Jelly should be stored in a cool, dark, dry place. If jelly is stored for a long period of time, it will deteriorate in texture, color, and flavor.

Mistakes to Avoid.

Soft jelly.—Jellies sometimes are sirupy because more sugar has been used than the fruit juices require or because boiling after the addition of sugar was not continued long enough to drive off excessive water.

Tough jelly.—Jelly is tough or stringy because too small an amount of sugar was used for the quantity of fruit juice taken or because the boiling was continued after the jellying point had been reached.

Crystals in jelly.—Crystals appear throughout the jelly because of an excess of sugar. When sugar is boiled with an acid for a sufficient length of time, it is changed into a form which does not crystallize. Crystals are found in jelly sometimes because the juice is boiled to too great a concentration before the addition of sugar, or in boiling the sirup spatters on the side of the pan, dries, and in pouring the finished product these crystals are carried into the glasses of jelly, and in that way the jelly becomes seeded with crystals.

Cloudy jellies.—This may be due to having cooked the fruit too long before straining off the juice or to not having used sufficient care in straining the juice. Sometimes it is noticed in apple and crab-apple jelly that although it is clear when first made, the jelly becomes cloudy after a time. In these cases it usually is due to the use of partly green fruit, the starch in this fruit probably causing the cloudy appearance.

WATCH THE WEATHER FORECAST.

Loss of perishable food products can often be avoided through a knowledge of coming weather conditions. During the summer season a great deal of food is spoiled by high temperatures. This wastage is widespread. It occurs in many households. It may be, and ofttimes is, occasioned by carelessness or lack of forethought. Refrigerators are insufficiently iced. Families leave home for the day on picnics without making provision for taking in ice in their absence.

It is possible to avoid a great deal of the waste of this character by taking heed of the daily forecasts of probable temperature issued by the Weather Bureau and which are universally published by the daily press.

The conservation of ice, likewise, and this in itself is important, may be effected by taking similar precautions.

Watch the weather forecast.

Grass clippings make excellent green feed for the back-yard poultry flock.

READY TO SACRIFICE.

Texas Farmers Will Stop Growing Cotton if That Is Only Way to Keep out Pink Boll Worm.

If the only way to keep the pink boll worm of Mexico out of the United States is for Texas cotton growers in a zone along the Rio Grande River to stop growing cotton altogether, these farmers are willing to sacrifice one of their most profitable crops to save the cotton-growing South.

That was the declaration of seven men representing farmers and business interests of the lower Rio Grande River region in Texas who came to Washington to confer with representatives of the United States Department of Agriculture over the peril to the American cotton industry now lurking in the cotton fields of Mexico. But to give up cotton means a considerable sacrifice on their part, the farmers said, and for this reason they urged that the declaration of a cotton-free zone, as contemplated by the Federal and Texas State Governments, be made only as a last resort.

Cotton Important in Region Affected.

Cotton, the Texas representatives said, was an important cash crop in the lower part of the zone planned as a barrier to the Mexican pest. It was said that the area in cotton this year in the two counties, Hidalgo and Cameron—the territory chiefly affected—was 24,000 acres. A representative from the dry-farming section farther north declared that cotton was one of their most profitable crops and that it would be a hardship for them to give it up. The representatives joined in a recommendation suggesting the establishment, in cooperation with officials of Mexico, of a cotton-free zone on the Mexican side of the river instead of in Texas. Since little cotton would be affected by such a zone on the Mexican side, it was believed that this plan could be carried out with much less loss.

Support Pledged to Necessary Measures.

Representatives of the Texas State department of agriculture and the State agricultural college pledged support to whatever measures were deemed necessary. All the Texas delegates were thoroughly aroused to the menacing pest and declared they were ready to support drastic measures. That a cotton-free zone in Texas, however, should not be declared until every other measure calculated to prevent the introduction of the pink boll worm had proved futile, was the sentiment of the Texans.

Every Effort Being Made to Fight Pest.

Specialists of the Department of Agriculture told the delegates that all possible effort would be made under the pending appropriation, and is now being made with an emergency fund, to fight the pink boll worm in Mexico. The establishment of a cotton-free zone in Texas, it was declared, would not be put into effect unless it proved the only way to save the cotton industry of the South. In event that such action should be taken, the department representatives pledged the assistance of the department in developing substitute crops for cotton in the contemplated zone.

Representatives in Attendance.

The seven representatives from the contemplated cotton-free zone were R. B. Rentfro, C. L. Jessup, Amos Rich, C. H. More, and S. C. Tucker, all of Brownsville; C. H. Pease, Raymondville, and H. H. Harrington, Kingsville. State officials who attended were Fred W. Davis, commissioner of agriculture; Ernest E. Scholl and Ed. L. Ayers, of the Texas State department of agriculture, Austin; and F. B. Paddock, State entomologist, College Station.

After this conference, officials of the United States Department of Agriculture and the State officials of Texas discussed the details of the cooperative arrangement by which the pink boll worm is to be kept out of this country.

FEED COWS LEGUME HAY.

Keep all your good dairy cows. The country needs them and they can be kept at a profit, says the United States Department of Agriculture. The present high price of grain has encouraged practical feeders to look for cheaper feeds. They have found that legume hay and corn silage can be substituted in part for expensive concentrates.

Investigation Made in Indiana.

In cooperation with the extension department of Purdue University the United States Department of Agriculture last year made an investigation of the cost of producing milk in 16 dairy herds in Porter County, Ind. In that study it was found that when other conditions were the same the dairymen who fed the largest quantity of clover, alfalfa, and other legume hays used 38 per cent less grain without lessening the production of their cows. That is, the dairymen who fed legume hay obtained as much milk from 62 pounds of grain as the others obtained from 100 pounds of grain.

Such a saving is certainly worth while. Patriotism demands increased production; the high cost of living demands economical production; both those demands are met when all our good cows are kept, and when their milk flow is maintained at low cost.

JELLIES FROM PECTIN.

This Substance May Be Extracted from Fruits Rich in It, for Use with Fruits Deficient in It.

Pectin, the essential jelly-making substance, may be extracted from fruits rich in it and this concentrated product used with the juices of fruits deficient in pectin, for the making of excellent jellies.

Apple Pectin.

1 pound apple pulp (or skins and cores).[1]
Juice of 1 lemon.
4 pounds water.

Boil for ½ to ¾ hour, press the juice through a cloth bag, then allow this juice to drain without pressure through a heavy flannel or haircloth jelly bag. This juice when cold should be tested with alcohol to determine the proportion of sugar to add to a volume of juice. Pectin can be bottled, processed for 15 minutes in a water bath at boiling, and kept until needed for jelly making.

Orange Pectin.

Cut or scrape the yellow rind from the peel of the orange, the white portion remaining being passed through the food chopper and weighed. For each pound of this prepared peel add 2 pounds of water and 4 tablespoons of lemon juice, mix thoroughly, and allow to stand 15 minutes. Then add 2 pounds water, boil 10 minutes, let stand overnight. Next morning boil 10 minutes, allow to cool, press to remove juice, and then drain juice through a flannel bag. If not desired for immediate use, bottle and process as for apple pectin.

Mint and Orange (or Apple) Pectin Jelly.

1 pint concentrated orange (or apple) pectin juice.
1 pound sugar.
2 drops oil peppermint.
2 drops green vegetable coloring.

Bring the orange or apple pectin juice to boiling, add sugar, and boil rapidly until the jellying point is reached. At this point 2 drops of green vegetable coloring matter is added, together with 2 drops of oil of peppermint. Stir thoroughly, and pour while hot into clean, sterilized jelly glasses. After a few moments the scum which rises to the top may be removed from the jelly easily with a spoon. Complete jelly as previously directed.

Strawberry and Orange (or Apple) Pectin Jelly.

½ pint concentrated orange (or apple) pectin.
½ pound sugar.
½ pint strawberry juice.

Mix orange (or apple) pectin juice and the strawberry juice, bring to a boil, and add sugar. Continue boiling until the jellying point is reached. Pour immediately into hot sterilized jelly glasses and skim. When cold, pour hot paraffin over the jelly.

Pineapple and Orange (or Apple) Pectin Jelly.

Add 1 pint orange (or apple) pectin juice to 1 pint pineapple juice which has been boiled for 10 minutes, add 1 pound sugar, and continue boiling until the jellying point is reached. Pour immediately into hot sterilized jelly glasses and skim. When cold, pour hot paraffin over the jelly.

Apple Jelly.

1 pound fruit.
2 pounds water.
Boil together for ½ to ¾ hour and strain.

One pint strained juice; determine amount of sugar to be added by the use of the alcohol test previously given; bring the juice to a boil, add the sugar, and cook as rapidly as possible until the jelly point is reached. Remove from the fire, skim, pour into hot sterilized glasses, and when cold cover with melted paraffin.

Grape Jelly.

4 pounds grapes.
1 pound water.
Crush and boil together for 20 minutes, press through a jelly bag, and allow to drain through a flannel bag.

Test the strained juice with alcohol to determine the proportion of sugar to use. Bring the grape juice to boiling, add sugar, and stir until the sugar is dissolved. Continue the boiling until the jelly point is reached. Remove from the fire and skim. Pour into hot sterilized glasses, seal, and store.

Blackberry Jelly.

4 pounds blackberries.
1 pound water.

Select 3 pounds of ripe fruit and 1 pound of underripe fruit, wash by running water over them, crush, and add 1 pint of water and boil 15 minutes. Press the pulp and strain the juice through a flannel bag. Determine the correct amount of sugar to be added by the use of the alcohol test. Bring the juice to a boil, add sugar, and stir until the sugar is dissolved. Continue the boiling until the jelly point is reached. Remove from the fire and skim. Pour into hot sterilized glasses, seal, and store.

The instructions given in these recipes were prepared mainly with a view to preserving for home use. If products are packed for sale the State food commissioner should be consulted as to the State regulations regarding such products, and if they are packed for interstate shipment additional information concerning the requirements under the Federal food and drugs act should be secured from the Bureau of Chemistry of this department.

[1] Only sound fruit should be used, not decomposed or worm-eaten fruit.

In raising baby beeves it is essential to have a herd with a fair amount of beef blood.

WATCH THE PIGS.

Two Forms of Necrobacillosis Are Common Summer Ailments in Insanitary Quarters.

Outbreaks of necrobacillosis, a disease affecting pigs, are likely to occur in summer in insanitary pigpens. One form of the disease, commonly known as "sniffles," and another developing symptoms somewhat akin to hog cholera are the commonest expressions of this ailment which has many forms. In a circular recently issued by the Bureau of Animal Industry of the United States Department of Agriculture these two forms, known as necrotic rhinitis and necrotic enteritis, are described and remedial and preventive measures given.

Necrotic Rhinitis.

The form known as necrotic rhinitis may be recognized, the circular states, by lumps or swellings which appear on some part of the head or face of the pig, usually on the snout. Pigs so affected eat but little as a rule, and sneeze repeatedly, often expelling a bloody material. Treatment for this form has to be applied in the early stage. It consists in opening the swelling, removing the pus, and applying in the opening made, with a syringe, either of these remedies: Glycerine 15 parts, carbolic acid 1 part; or nitric acid 1 part and water 6 parts; or a 50 per cent solution of iodine. If the swelling has become extensive, treatment is of little value and the destruction of the animal is recommended.

Necrotic Enteritis.

Pigs affected with the second form of the disease, necrotic enteritis, show a lack of appetite, become unthrifty, emaciated, and weak. The absence of red spots on the bellies and the normal or at times subnormal temperature of the animals differentiate this ailment from cholera. With this form, as in the first, the remedy must be used before the disease has made progress. Proper diet, physics, and intestinal antiseptics, as described in the circular, form the treatment recommended.

Preventive Measures.

Frequent and thorough cleaning out of pens, troughs, feeding floors, sheds, and hog lots may prevent this ailment of pigs. A liberal quantity of lime should be applied in pens, houses, and adjoining lots. Pigs, shoats, and older hogs should not be allowed to feed from the ground. Suitable feeding floors, preferably of concrete, and troughs of some nonabsorbent material that can be cleaned out, washed, and disinfected frequently, are recommended.

Rats are spreaders of disease.

FRUIT PASTES.

Fruit Pulp Is Boiled Down, Flavored, and Dried—Useful for Desserts and Garnishings.

Fruit pastes, as they are called, consist of boiled-down fruit pulp with sugar added according to the acidity of the fruit, and are improved in flavor if several varieties of fruit are mixed. After the fruit paste is made (see recipes), it can be colored red, yellow, or green with harmless vegetable colors. The coloring is stirred into the boiling mass after removing from the fire. Different flavors also can be added at this stage if desired. The paste is poured up in a half-inch layer on flat dishes, marble, or glass slabs, which are first rubbed with a cloth dipped in a good salad oil. The dishes are then exposed to draft for a couple of days, after which the paste is cut into figures. If the paste is well boiled down it is dried more easily. (Many small forms useful for cutting the paste can be had on the market.) The paste can also be cut with a common knife or with a fluted vegetable knife, or it can be cut into round cakes, the center of which is again cut with a smaller circular cutter; there will thus be both rings and small round cakes. The cut paste is placed on paper, sprinkled with crystallized sugar or common granulated sugar. Then it stands again a couple of days exposed to draft, is dipped in crystallized sugar, and packed in a tin or wooden box lined with parchment paper and with layers of the same paper placed between the layers of paste.

The paste can be kept thus and served as dessert, and as garnishing on creams and custards, frozen creams, large cakes, etc.

Apricot Paste.

One pound powdered sugar to 1 pound fruit pulp. Rub the fruit pulp through a purée strainer and weigh it. Add the sugar, put it over a slow fire, and cook until very thick, so that when a spoon has been passed through it the mass does not run together immediately. Then pour the paste upon flat dishes which have been rubbed with oil and allow it to dry. Cut and pack in layers as directed above.

In the same manner raspberry, strawberry, and currant pastes are made.

Quince Paste.

Three-fourths pound powdered sugar for each pound of fruit pulp. Wipe the fruit, cut into quarters, remove flower and core, and cook in water until very tender. After rubbing the pulp through a sieve, weigh it and add the required amount of sugar. It is then cooked until very thick. Scalded and chopped nut kernels may be added. The pulp remaining after the juice has been extracted for quince jelly may be used also.

Gooseberry Paste.

One pound powdered sugar for each pound of fruit pulp. Use part ripe and part slightly underripe berries. Cook as previously described. This paste may be colored before it is poured out. Different flavors also can be added to the gooseberry as well as chopped or sliced almonds or other nuts.

Apple Paste.

One-half pound powdered sugar to 1 pound pulp as rubbed through a sieve. For this product apples that are of lower grade than is required for some other purposes can be used. Cut the apples into quarters. Remove flower, stem, and core. Put fruit into cold water until it is ready to be cooked. Boil tender under cover and over a very low fire in order not to scorch. Rub the tender apples through a coarse sieve, weigh, and put into the kettle to be cooked with the sugar under constant stirring until it is rather firm. It can be varied in taste by the aid of different additions, as, for instance, vanilla, peppermint, or orange flavor, or cooked with either finely cut citron, finely cut lemon peel, or blanched and cut nut kernels. The paste is poured out, dried, and kept as the others.

Other fruit pastes can be made of cherries, plums, and other fruits.

It is often advisable to make several different pastes. When nearly dry (before cutting) place different colored or different flavored layers on top of each other as in a layer cake. With a sharp knife cut in one-half inch strips through all layers and dry.

COTTON CATERPILLAR.

Most Harmful Cotton Pest Before Boll Weevil Came—Again Causing Damage in Georgia and Alabama.

Invasion of parts of Georgia and Alabama by the cotton caterpillar, the moth of which has flown across the Gulf of Mexico from South America, has just been reported to the Bureau of Entomology of the United States Department of Agriculture. The caterpillar is a voracious feeder, the bureau warns, and strips cotton stalks almost completely of foliage if its activities are not combated. Several generations of the insect probably will be produced before frost, and can be expected to work their way north through the cotton belt, as well as to spread east and west.

How to Combat Pest.

Planters in the regions likely to be infested, say the department entomologists, should supply themselves with powdered arsenate of lead so that they may combat the insects on their first appearance. The poison is best applied from sacks of duck or double thicknesses of flour sacking suspended from each end of a pole carried on horseback. The powder may thus be shaken on two rows of cotton plants at a time.

A convenient outfit is made by using a piece of lumber 3 inches wide by 1 inch thick and about a foot longer than the distance between rows, from which to suspend the sacks. Sacks 6 inches by 20 inches can then be made open on one long side. The edges of this opening can be tacked to the edge and end of the board and an auger hole bored in the latter over each sack. The powder can then be poured into the sacks through these holes and a cork inserted if desired.

Few Outbreaks in Recent Years.

The cotton caterpillar was the most serious insect pest of cotton in the United States before the coming of the boll weevil. With the exception of 1911, however, there have been few outbreaks of magnitude in recent years. The moths of the caterpillar are strong fliers as is proved by the flights over the Gulf of Mexico. In early fall moths of the late generations often are found as far north as Canada. The insects in all stages are completely destroyed by cold weather.

INDEX FOR VOLUME IV.

A complete subject index of Volume IV of the Weekly News Letter is now in course of preparation. This index will be issued as a supplement to the News Letter but will be supplied only to those who send in a request for it.

Those wishing this index should address a postal card to the Editor and Chief, Division of Publications, U. S. Department of Agriculture, Washington, D. C. Copies will be mailed free to those requesting it as soon as the supplement is issued.

DO YOU BREED GAME BIRDS?

If you are a breeder of game birds and have either birds or eggs to sell, the Biological Survey of the United States Department of Agriculture would like to have your name. The Survey desires to be of service to many persons who inquire for breeding stock and for eggs to hatch.

An inquiry recently has been sent to numerous breeders of pheasants by the Survey in which these questions are asked:

(1) Are you still engaged in raising these birds for sale?

(2) Have you any other game birds, and if so, what kinds?

(3) Have you any eggs of game birds for sale?

Rats rob bins and feed troughs.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., AUGUST 15, 1917. No. 2

BILLION BUSHELS OF WHEAT RECOMMENDED FOR NEXT YEAR.

United States Department of Agriculture and State Officials Set High Mark for Wheat Production—Winter-Wheat Acreage to Be Increased This Fall by 18 Per Cent Over Last Year—Rye Acreage Also to Be Expanded—Details of Acreage Proposed.

The production of over 1,000,000,000 bushels of wheat and over 83,000,000 bushels of rye, through the planting of 47,337,000 acres to winter wheat and of 5,131,000 acres to rye this fall, is the immediate war agricultural program for the Nation announced to-day (August 9) by David F. Houston, Secretary of Agriculture. This record winter-wheat acreage, an increase of 18 per cent over last year, would yield 672,000,000 bushels if the average yield for the past 10 years is equaled, or under a repetition of the favorable conditions of 1914 would give 880,000,000 bushels. In either case, with a spring-wheat crop next year equal to that of 1915, the Nation will have more than 1,000,000,000 bushels of wheat for domestic use and export.

This vastly increased production of wheat, needed in any case, will be absolutely essential to prevent a serious shortage of breadstuffs next summer should the growing corn, now behind the season, be much damaged by early frosts.

The program approved by the Secretary of Agriculture represents the best thought of the United States Department of Agriculture and of State agricultural officials and State councils of defense.

The study of this question has involved many factors, and the specialists have been aware from the first that the demands for wheat may exceed the supply next year. Effort, therefore, has been made to recommend in each State about as large an acreage in wheat and rye as can be sown without upsetting proper farm practice, which must be maintained in the interest of wheat and rye crops this and succeeding years, as well as in the interest of other necessary spring-planted crops, which are not discussed in detail at this time, as they are not food crops in which a marked shortage exists.

The estimates, the department states, are made with the knowledge that there is some shortage of the fertilizer supply, but with the assumption that there will be no general shortage in the supply of seed or of farm machinery which is necessary in the production of the wheat crop. It is assumed also that ample transportation facilities will be provided and a fair price of wheat will be established. These factors have been assumed as fixed and satisfactory. If any one or more fail to be adjusted in good time, no person can tell how serious will be the effect on the total crop.

The planting and cultivation of these increased acreages of fall-sown grains call for unusual effort on the part of the farmers. Plans to place at the disposal of farmers all assistance possible are being perfected in the United States Department of Agriculture, the State colleges of agriculture, and other State and local agencies which cooperate in farming matters. The assistance of successful growers of wheat and rye in a campaign to turn out bumper crops in 1918 is assured.

The State officials will do their utmost to get the acreages expected of their States into the ground. The program as originally worked out by the Federal Department of Agriculture called for somewhat more than 44,000,000 acres to be sown to winter wheat this fall. When this proposal was presented to the officials of the several States a further increase was considered possible and desirable by them. As a consequence the recommendation for the sowing of 47,337,000 acres is made.

Following is a summary of the department's recommendations regarding winter wheat and rye:

Wheat.

The planting of approximately 47,337,000 acres to winter wheat, on the basis of the average yield for the past ten years, indicates a total production of 672 million bushels, which exceeds all previous winter-wheat crops harvested in the United States with the exception of the crops of 1914 and 1915, when the acreages harvested and yields per acre were both above normal.

If the extremely favorable conditions under which the winter-wheat crop of 1914 was grown are again experienced, the yield of winter wheat next year will be 880,000,000 bushels, or by far the largest winter-wheat crop ever produced and even larger than the total of both winter and spring wheat crops for all past years except two.

It is too early to determine the area which should be sown to wheat next spring, but if this is equal to that sown in the spring of 1917, or 19,000,000 acres, and the yield is up to the average of the last 10 years, a crop of 251,000,000 bushels of spring wheat will be harvested, and if the yield per acre should equal that obtained in 1915 the crop will be 350,000,000 bushels, the same as the greatest spring wheat crop ever produced. Thus, with no increase in the spring-wheat acreage, but with the 18 per cent increase over the 1916 winter-wheat sowings planned for this fall, the total wheat crop next year will be more than 1,000,000,000 bushels, if the crop meets with slightly better than 10-year average conditions. With extremely favorable conditions, such as were experienced by the winter-wheat crop in 1914 and the spring-wheat crop in 1915, the total yield would amount to 1,250,000,000 bushels. A 10 per cent increase in spring-wheat acreage, with favorable growing conditions, would add another 30,000,000 bushels. The figures quoted above are based upon a winter-killing of 9 per cent and yields per acre of 15.6 bushels for winter wheat and 13.2 bushels for spring wheat, the averages for the last 10 years, and a yield per acre in 1914 of 19 bushels of winter wheat, and 18.4 bushels of spring wheat in 1915.

PRINCIPAL INCREASES IN WHEAT PRODUCTION.

The principal increases in acreage of winter wheat are recommended in the areas where the acreage devoted to that cereal is already large and farmers are accustomed to growing wheat and are equipped with machinery for producing the crop. A material increase also is recommended in most of the areas where the production of oats and corn is heavy, since much wheat can be sown to advantage on oat stubble and in the standing corn or on ground from which the corn crop has been removed for the silo or cut for fodder. In some districts the increase in the acreage could be made larger, but this has seemed inadvisable for fear of disorganizing crop rotations, with injury to crops in succeeding years. The detailed recommendations resulting from the joint consideration given to the subject by the Federal Depart-

ment of Agriculture and by State officials are shown in the accompanying table.

Winter-wheat acreage.

(000 omitted.)

State.	Acreage suggested for fall of 1917.	Acreage sown in fall of 1916.	Per cent of increase over 1916.	Maximum acreage sown in any year since 1906.
New York	520	441	18	478
New Jersey	110	94	17	112
Pennsylvania	1,659	1,457	14	1,659
Delaware	150	136	10	136
Maryland	760	692	10	797
Virginia	1,670	1,455	15	1,455
West Virginia	380	340	12	380
North Carolina	1,180	1,053	12	1,053
South Carolina	325	238	37	328
Georgia	786	393	100	393
Florida	.....	.....	.....	.....
Ohio	3,000	1,879	60	2,340
Indiana	2,800	2,256	25	2,820
Illinois	2,934	2,362	24	2,934
Michigan	1,059	896	20	1,059
Wisconsin	130	101	29	103
Minnesota	95	87	10	87
Iowa	525	451	16	525
Missouri	2,400	2,277	5	2,859
North Dakota	.....	.....	.....	.....
South Dakota	182	182	0	182
Nebraska	3,674	3,645	1	3,674
Kansas	10,000	8,910	12	8,958
Kentucky	1,000	881	13	968
Tennessee	1,080	900	20	901
Alabama	200	133	50	133
Mississippi	100	18	455	18
Louisiana	.....	.....	.....	.....
Texas	1,830	1,695	8	1,730
Oklahoma	4,040	3,232	25	3,232
Arkansas	308	225	37	265
Montana	1,000	775	29	775
Wyoming	85	79	8	79
Colorado	440	420	5	420
New Mexico	100	94	6	94
Arizona	43	37	16	43
Utah	275	246	12	256
Nevada	25	22	14	23
Idaho	405	346	17	405
Washington	850	754	13	1,271
Oregon	708	472	50	692
California	509	413	20	1,669
United States	47,337	40,090	18	45,306

BASIS OF INCREASED ACREAGE.

Since the acreages sown last fall are fresh in the memory of farmers, the sowings suggested for this year are compared with those of 1916. For Kansas, where more than one-fifth of the winter wheat of the country was sown in 1916 and a campaign for an increase already is under way, an increase of more than a million acres, or one-seventh of the total increase, is recommended. Ohio is asked for one and one-tenth million acres over last year's sowings. This is considered possible and desirable by the agricultural leaders of the State. Because of available land in the State, Oklahoma is asked to increase the acreage one-fourth, amounting to more than 800,000 acres. Indiana and Illinois are each asked to increase their acreage by somewhat more than a half million acres, thereby equaling what they have sown in the recent past. Oregon, because of the abnormally low acreage sown last fall, is asked to increase the acreage this fall by one-quarter million acres, or 50 per cent. These six States, Kansas, Ohio, Oklahoma, Indiana, Illinois, and Oregon, in which nearly one-half of the winter wheat was sown last fall, are asked to furnish considerably more than one-half of the increase planned for this fall. Their agricultural leaders think it is possible and are taking the necessary steps to see that it is done.

The largest percentage increases are requested in some of the Southern States. Mississippi leads with 455 per cent increase and Georgia comes next with 100 per cent increase; Alabama is asked for 50 per cent increase; Arkansas for 37 per cent; and South Carolina for 37 per cent. These Southern States are anxious to increase their acreages by this amount to safeguard their own food supply. The increase in actual acres, however, is comparatively small in each of these cases.

Wisconsin, another State in which the present wheat acreage is small, is asked to increase the sowings 29 per cent, as wheat is well adapted to newly opened land and as present prices make it a profitable crop in the State. Montana is asked to put in an even million acres, an increase of nearly 30 per cent. But this is not a large total for the entire State, in view of its large acreage of unused land suitable for wheat.

The following States are asked to increase their acreages 16 to 20 per cent over those sown in the fall of 1916: New York, New Jersey, Michigan, Iowa, Tennessee, Arizona, Idaho, and California. The following States are asked to increase their 1916 acreages by 11 to 15 per cent: Pennsylvania, Virginia, West Virginia, North Carolina, Kansas, Kentucky, Utah, Nevada, and Washington. The following States are asked to increase their 1916 acreages by 6 to 10 per cent: Delaware, Maryland, Minnesota, Texas, Wyoming, and New Mexico. The States of Missouri and Colorado are each asked for 5 per cent increase, while practically the same acreages as sown last fall are asked for in Nebraska and South Dakota. The excessive winterkilling in Nebraska and consequent lack of seed wheat makes the situation for wheat growers very difficult this year in that State, but every effort is being made to equal and increase if possible the acreage of last year.

Most of the States for which only small percentage increases are suggested recently increased largely their wheat acreages and are already growing about as much as is consistent with a well-balanced agriculture.

Rye to Be Increased Heavily.

It is recommended that there be sown in the United States this fall 5,131,000 acres of rye, which on the basis of ten-year averages will yield 83,635,000 bushels. This is an increase of 917,000 acres, or 22 per cent over that sown last year, when the largest acreage in the history of the country was put in. It is an increase of 48 per cent over the 1915 acreage and of 57 per cent over the five-year (1912–1916) average sown acreage.

In any consideration of the expansion of the acreage of bread grains in certain parts of the country, it is necessary to consider wheat and rye together. This is because rye can be planted safely no many fields with less risk than wheat. Further, rye can be used as a substitute for wheat as a bread grain by those who are accustomed to it. Rye succeeds on poorer soils and with less fertilizer and in colder climates than wheat, and for these reasons should be planted in preference to wheat where it has been proved a safer crop. The farmer who, because of an attractive guaranteed price for wheat, may be tempted to plant wheat rather than rye in a locality where rye is the more certain crop takes a speculative risk of loss through winterkilling and destructive wheat diseases which is unwarranted. While no guaranteed price for rye has been authorized by Congress, there is every reason to expect that the price of rye for the next year will bear a satisfactory relation to that of wheat and, therefore, justify the planting of rye where the present experience with it indicates its superiority. Detailed recommendations for an increase in acreage to be planted to rye this fall over that of 1917 are found in the accompanying table:

Rye acreage.

(000 omitted.)

State.	Acreage suggested for fall of 1917.	Acreage sown fall of 1916.	Increase over fall of 1916 (per cent).
Maine	1	.....	.....
New Hampshire	1	.....	.....
Vermont	2	1	100
Massachusetts	6	3	100
Rhode Island	1	.....	.....
Connecticut	16	8	100
New York	170	162	5
New Jersey	120	78	54
Pennsylvania	350	280	25
Delaware	2	1	100
Maryland	35	29	21
Virginia	110	96	15
West Virginia	28	23	22
North Carolina	67	86	—22
South Carolina	50	7	614
Georgia	100	17	488
Florida	.....	.....	.....
Ohio	84	84	0
Indiana	275	203	35
Illinois	75	52	44
Michigan	454	378	20
Wisconsin	535	446	20
Minnesota	460	385	19
Iowa	116	58	100
Missouri	40	29	38
North Dakota	1,036	936	11
South Dakota	350	344	2
Nebraska	250	217	15
Kansas	100	84	19
Kentucky	33	33	0
Tennessee	50	31	61
Alabama	16	8	100
Mississippi	.....	.....	.....
Louisiana	8	.....	.....
Texas	2	2	0
Oklahoma	15	10	50
Arkansas	1	1	0
Montana	30	11	173
Wyoming	30	16	87
Colorado	30	30	0
New Mexico	.....	.....	.....
Arizona	.....	.....	.....
Utah	12	12	0
Nevada	.....	.....	.....
Idaho	3	3	0
Washington	10	6	67
Oregon	45	32	41
California	12	12	0
United States	5,131	4,214	21.8

BASIS OF INCREASED RYE ACREAGE.

Fall-sown rye should supplement spring wheat to a considerable extent in the spring-wheat belt. An enlarged acreage of rye in addition to the usual spring-wheat sowings

will help to guarantee a plentiful supply of bread grains next year. A disaster such as that which was caused by the combined effect of rust in the spring-wheat belt in 1916 and winterkilling in the winter-wheat belt last winter is thereby at least partially insured against. It is recommended, therefore, that the acreage of rye be increased this year in the spring-wheat sections over that sown in the fall of 1916 about 100,000 acres in North Dakota, 75,000 acres in Minnesota, 89,000 acres in Wisconsin, and 6,000 acres in South Dakota.

Rye should be sown more generally on the sandy lands along the Lakes in Michigan, Illinois, Indiana, Ohio, and New York, and in New Jersey, so an increase of 76,000 acres is recommended for Michigan, 72,000 for Indiana, and 42,000 for New Jersey. Rye also should take the place of many of the old pasture and hay lands of New York, Pennsylvania, and the New England States. Rye is a safer crop than winter wheat for such lands. Pennsylvania has much land more suitable for rye than for wheat, so an increase of 70,000 acres is suggested for that State. New York is asked for only 8,000 acres increase, but it is thought that a larger increase in rye may be possible in that State.

Some increases over the 1916 sowings are asked for in the cotton belt. It is estimated that last fall there was sown in the cotton belt about 100,000 acres of rye. It seems advisable to recommend that at least 250,000 acres of rye should be sown in the cotton belt this year, replacing some of the winter-oat acreage.

The States in the corn belt are asked also to enlarge considerably their rye acreage over that sown in 1916, as the lighter soils which are not especially well adapted for wheat could be planted to advantage to rye.

Special Methods to Increase Yields of Wheat and Rye.

Specialists of the Department of Agriculture and the State agricultural colleges hope that by better methods the average yield per acre will be at least maintained wherever there is a fertilizer shortage and will be increased in other sections. Much educational work will be done to make this desire an actuality, and in this campaign the most successful growers will have a prominent part. For instance, it is stated that on the land that could be sown to fall wheat this autumn, it is possible materially to increase the yield per acre by putting into practice some principles that are already well known to most farmers. These should appeal especially to those who can not increase their usual acreages without doing injustice to other crops which should be grown.

These principles may be summed up as follows:

(1) Plow early. Give the plowed land two months to settle before sowing, where possible.

(2) Compact the late-plowed land with roller and harrow.

(3) Don't plow after a cultivated crop. Prepare such land with disk and harrow.

(4) Make the seed bed a fit place for the seed.

(5) Sow with a drill sound, plump, clean seed of adapted variety.

(6) Prevent losses from smut by treating infected seed with formaldehyde.

(7) Make the soil fertile with manure or fertilizers applied judiciously where needed.

(8) Reduce winterkilling by following the above suggestions.

Tremendous Effort and Cooperation Necessary.

The accomplishment of this great increase of wheat and rye acreage without disrupting correct farming practice will call for tremendous effort on the part of farmers. However, the U. S. Department of Agriculture, the State colleges of agriculture, and other State and local agencies are planning to aid in every way possible.

CITY PRODUCES PORK.

Municipal Garbage Goes into the Growing of Meat.

The city of Hull, Mass., has a herd of 325 hogs which are turning garbage into pork, and providing a cheaper disposal of waste than was possible under the former garbage-reduction methods. Hull's municipal or community piggery has been undertaken in response to appeals for more meat production, and officials of the United States Department of Agriculture and of the Massachusetts Agricultural College report the system as practical.

The town's committee of public safety advanced the money to buy the young pigs, which were taken at cost by citizens. The land for pasturing and housing the hogs was given free, so the only cost was for two large hog houses. One man feeds and manages the entire herd. Each day the uneaten garbage is taken away before any more is fed; all hogs are inoculated against cholera and are kept under sanitary conditions.

Cost of Care and Feeding Shared Equally.

When the hogs are ready for market the unit cost of care and feeding will be shared equally by the owners, and this sum plus the original cost of the pig will be the only expense to the owners. The public safety committee is holding a surplus of young sows for breeding, since it plans to continue the system. Citizens of this town extol the advantages of its garbage disposal and recommend it for other places of similar size.

SAVE STAPLE FOODS.

Eat More Fruits and Vegetables—Save Surplus by Canning, Drying, Pickling, and Preserving.

"The great abundance of 'war-garden' and truck products in cities and rural communities offers an immediate opportunity for consumers locally to help better the world food situation," say the dietary specialists of the United States Department of Agriculture. "Make fresh vegetables and fruits save staple foods. Eat the perishable fresh fruits and vegetables now, while they are most delicious, and can and preserve them for future use."

The following available fresh fruits and vegetables may be classified for this war-emergency diet:

Apples, peaches, pears, plums, blackberries, raspberries, beets, carrots, potatoes, onions, beans, peas, sugar corn, tomatoes, cabbage, lettuce, etc.

Fresh Foods Now Abundant.

Right now there is an abundance of these fresh foods ripening in the "war gardens" of many cities and rural districts as well as on the farms. Housewives are urged to use those from their own gardens first. If they have no garden, they should purchase from local markets or farmers or neighbors while prices are low, and not only serve daily, but can, preserve, pickle, and dry for winter use.

Wherever the vegetables named are available abundantly from home gardens or can be purchased cheaply in the markets, or from neighbors, their use in the diet to a greater extent than usual will help food conditions. In general, the more simply vegetables and fruits are prepared for the table the better, but when they are being consumed in especially large quantities it often will be desirable to vary the dishes.

Vegetables May Replace Meat.

"Although fresh vegetables ordinarily are eaten by most persons in relatively small amounts with more concentrated foods, such as meats, eggs, cheese, etc.," declared a food expert of the department, "they may, when eaten in large quantities, take the place of the more concentrated foods to a certain extent. Because of the present large production of perishable fruits and vegetables, this partial substitution is especially desirable during the next six weeks or two months."

Rats eat every kind of human food—grain, dry groceries, meats, fruits, and vegetables.

STATE STATIONS ACTIVE.

Attention Centered on Research and Experimental Activities Concerning Country's Emergency.

In common with other institutions and organizations, the agricultural experiment stations of the United States have centered their attention on projects concerned with the solution of emergency war problems. A very large proportion of the recent activities for increased production and utilization of food have been based on methods perfected by the stations during the past 25 years. In the immediate work of the stations themselves toward meeting the emergency, some new projects have been taken up, but in many instances it has been necessary only to speed up projects already under way. In a number of cases directors of experiment stations are occupying prominent positions on State councils of defense, and in others the stations are cooperating actively with these councils in agricultural matters and food supply. At several of the agricultural colleges and experiment stations war emergency committees have been formed to review the projects in hand and outline suggestions regarding special emergency investigations. To a notable extent such studies of more immediate importance have been started, replacing in some degree those which can be postponed until a later time. Thus a majority of the stations already are operating more or less under a war-time program.

In addition to these new undertakings, a large amount of work in progress before the declaration of the existence of a state of war fits well into the new program.

Measures to Increase Food Production.

For example, one of the measures advocated to increase food production is the more extensive cultivation of legumes, like soy bean, velvet bean, and the peanut, to be used either as pasturage, for ensiling with corn, or for grinding as stock feed. This gives quite a variety of products, especially when there is added the residues from oil extraction, the value, utilization, and effect of which products have not been well known. The stations in the South have anticipated the need for such information, and during the past year especially have made many field and feeding experiments of various kinds.

The increase of pork production is advised as an important means of maintaining meat supply. Successions of forage crops for pasturing hogs throughout the year have been worked upon at several of the stations, which give relatively cheap products. Waste products, especially those on farms, will need to be utilized to a larger extent to piece out and economize the feed supply. This has been a subject of much experimentation in all parts of the country. The ordinary materials include such as corn stalks, cotton stalks, straw, waste hay, and aftergrowth in cultivated fields. The wintering in good condition, at one station, of a lot of 58 steers on the hay cut from a corn-stalk field containing pea vines, Johnson grass, crab grass, etc., which grew up after the corn had been pulled, emphasizes the possibility of utilizing to advantage roughage which would otherwise be practically wasted. Experiments with steers and with sheep on dry-land feeds show how far these materials may be relied upon, and in the case of sheep demonstrate the advantage to farmers of having a sufficient number to eat up the roughage and waste instead of keeping them all on the range.

No less than 10 different stations have lately been working on various aspects of the conservation, handling, and most efficient use of barnyard manure—a subject of prime importance at a time when there is a shortage of fertilizers and difficulty in securing potash.

"Wheat Field Meetings."

Increase of the acre-yield of wheat is one of the surest ways of increasing the volume of production. The means for this have been the subject of continued study and experiment the country over, the larger application of which has awaited just such conditions as the present affords. The working of these results into the practice of wheat growing is not altogether a matter of bulletins and propaganda. The Ohio station recognizes this in its call to farmers to attend its "wheat field meetings," and join in the slogan "Sixty million bushels of wheat for Ohio in 1918." . Its circular says: "For a third of a century the Ohio Experiment Station has been preparing for this emergency, and its wheat fields, scattered over the State as they are, are in condition to show both what to avoid and what to do in order to produce a maximum crop of wheat on Ohio soil."

Another station has just completed an extensive study of the rice weevil and the method of preventing the immense injury it does to corn stored on farms. This control is based on simple, practicable methods of harvesting and storing the crop, which it is confidently asserted would save some three million dollars' worth of corn in Alabama alone.

Cereal breakfast foods may be made more palatable by good seasoning. Be sure to use enough salt to suit your taste. Many dishes made with cereal products are made appetizing by adding to them a small quantity of more highly flavored foods, such as meat, cheese, tomatoes, etc.

MARKETING PLAN.

How One City is Assisting Growers and Conservers of Truck Crops—Adequate News Is Essential.

Providence, R. I., in cooperation with the Bureau of Markets of the United States Department of Agriculture, is solving the problem of marketing perishable fruits and vegetables. Produce dealers, truckmen, housewives, and the local press are working together to the common end of relieving gluts on the market, securing to producers fair prices for their crops, and assuring housewives of reasonable prices.

Adequate Information Is Keynote.

The keynote of the situation, according to marker experts, is adequate market-news information.

The local agent of the United States Bureau of Markets compiles daily all the available information as to the various fruits and vegetables offered that day on the wholesale farmers' market. Usually by 5 a. m. on the day before sales are actually begun these figures are in the hands of growers, dealers, and the press. If the figures show that the supply is light, the grower is instantly apprised of the fact and can regulate his prices accordingly. When the supply is heavy, knowledge of the market situation enables him to start his selling at prices attractive enough to stimulate demand and keep the stock moving.

System Benefits Both Buyers and Sellers.

This system is said to work out so that the truck gardeners and "war gardeners" of the Providence section are receiving an increased average return on their crops. This does not mean that prices are generally increased to the dealer, but rather that a fair and steady price is maintained. The grower finds an outlet for his entire crop, so that he is able to sell it for at least the cost of harvesting and marketing instead of being forced to let it go to waste.

Retail dealers benefit by the system, since a demand is created for a greater volume of products. Women's clubs, canning clubs, and individuals desirous of fresh fruits and vegetables, know when and where to secure their supplies most advantageously.

Big Business in Spinach.

A Providence grocer doing a large business has practically doubled his sales of spinach this season. Formerly he had to figure on throwing away between 25 and 50 per cent of the spinach which he had bought and paid for, simply because sales were slow and the produce deteriorated.

Members of the Providence Market Gardeners' Association declare that the staving-off of a glut of spinach on two succeeding days saved them more than their share of the salary of the agent for the entire season. It is a conservative estimate that between $500 and $1,000 a day is being saved the consumers of Providence on home-grown fruits and vegetables.

The Bureau of Markets considers the Providence plan to be fundamentally sound and declares that it serves the best interests of growers, retail dealers, and consumers alike.

GARBAGE DISPOSAL.

Secretary of Agriculture Urges Cities to Recover Grease and Tankage.

The Secretary of Agriculture has addressed the following letter to the mayors of all large cities which have no reduction plants for recovering valuable materials from garbage:

"This department desires to bring to your attention the matter of the conservation of the garbage in your city. At the present time there exists throughout the world a shortage of both fats and fertilizer materials. This situation promises to grow more serious as the war in Europe continues. It is therefore a matter of prime importance that all available sources of both of these materials should be used to the best advantage. Garbage contains on the average about 2 per cent of grease and about 20 per cent of tankage, the latter having valuable properties as a fertilizer material. Any method of disposal of garbage in large cities which does not recover both the grease and the tankage is uneconomic and particularly deplorable in the present circumstances. We wish, therefore, to urge upon your consideration the advisability of so treating the garbage from your city as to insure the recovery of its valuable constituents. That this may be made a source of profit to a municipality has been proven by numbers of cities in the United States where municipal rendering plants have been erected, and in a number of others, private plants are now operating and paying dividends on the investments. We will be glad to furnish you with any further information at our disposal on the subject, upon request."

APPOINTED SPECIAL ASSISTANT.

William D. Hurd, director of the extension service in Massachusetts, has been appointed temporarily as special assistant in the office of the Secretary of Agriculture. He will give attention to joint efforts being made by the department and the States in connection with production, conservation, and marketing of food crops. Prof. Hurd has been engaged in extension work in Massachusetts during the past eight years.

RECLAIMING THE SWAMP

Organization of Drainage District Is First Essential—Advantages of Cooperation.

Experience has shown that the most practicable and most economical way to reclaim large areas of wet lands is by the landowners forming a drainage district under State laws. As these laws are technical and as they must be closely observed, the employment of a competent, industrious attorney at the very beginning is essential.

Steps to Be Taken.

The first step in forming a drainage district is for the required number of landowners to file with the official authorized by law to form districts a petition describing the land involved and praying for its organization into a drainage district. A bond for preliminary costs and organization expenses should accompany the petition. An engineer, or board of viewers, is then appointed by the official to make a preliminary examination of the lands in question, after which a report is filed with the official. Notice setting a day for a hearing is then served on owners of land which the petition and report indicate should be included within the district. On the date set in the notice any landowner may appear in favor of or against the district. After hearing all parties, if it is deemed to be to the advantage of the owners and the public interest, a district is ordered established. At the same time a board of drainage commissioners to administer the district is appointed from among the land owners, or they are elected by the landowners shortly thereafter. In some States commissioners are not selected until later in the proceedings. From the order establishing the district an appeal may be taken within a certain time.

Assessment of Benefits and Damages.

Upon the establishment of the district, arrangements are made for the preparation of a plan of drainage and the assessment of benefits and damages to the various tracts of land which will be affected. Upon the filing of plans and report of assessments, notice is given to owners of all affected lands informing them of a date when they will be given an opportunity to present any objections they may wish to make to the plans and assessments. After all parties are heard, the assessments are confirmed and thereafter they form the basis for all tax levies against the individual tracts. A right of appeal within a certain time is granted.

What Is Gained by Cooperation.

The advantages accruing from such an organization are: (1) Drainage can be secure at less cost than through unorganized or individual effort. (2) The district becomes a form of corporation and acts through a board of officers. (3) The district as a whole is financially responsible. (4) Costs are distributed against each tract in proportion to benefits conferred. (5) The district has the power of eminent domain. (6) Bonds may be issued in the name of the district, thereby permitting the landowners to extend the payment of their share of costs over a period of years. (7) Authority is conferred to do all acts necessary to accomplish the purposes of the district.

PORK FROM FOOD WASTES.

Even though the hog furnishes the most meat for a given amount of feed and will produce it in the quickest time, the United States Department of Agriculture points out that this meat should be produced mainly from food wastes and not from good grain that would furnish food directly to man. Th great economy in pork production comes from the fact that pigs furnish a food by-product from these wastes and do not need the high-grade feeds that beef cattle must have.

Different Wastes Available.

Wastes on farms and in the towns make good hog feed; by-products from canneries, bakeries, fisheries, packing plants and the like can be utilized as hog feed and to better economic advantage than in any other way. Dairy wastes are particularly valuable as hog feed and promote rapid growth with a good money return for every gallon fed.

The farm orchard furnishes large quantities of windfallen or defective fruit, which is relished by hogs, and is beneficial if fed in small quantities frequently, and not all at one feed. Garden wastes, tops of vegetables, culls of all sorts, even weeds, are readily eaten, and such as may not be eaten will be worked over, going into the bedding and adding to the manure.

Kitchen wastes are an excellent source of food for hogs, but should be kept at a minimum, because practically all food prepared for man's use should be eaten by him.

SEED SURPLUSES AND SHORTAGES.

The committee on seed stocks of the United States Department of Agriculture is endeavoring to assist in supplying information as to where seeds may be obtained. To this end it will appreciate information from anyone who has seed to offer. The information should contain the name, kind, and variety, and approximately the quantity of seed offered as well as the price asked. It proposes to file all such information and to use it in answering inquiries that may be received from various parts of the country. All such communications should be addressed to R. A. Oakley, chairman committee on seed stocks, U. S. Department of Agriculture, Washington, D. C.

JUICES AND SIRUPS.

How to Prepare Grape and Other Fruit Juices, and Apple and Muscadine-Grape Sirups.

Various fruit juices may be prepared in the home and bottled for future use. Practically any fruit may be used in the first recipe following.

Sterilized Fruit Juices.

The fruit juice may be pressed out of fruit by means of a cider press, special fruit press, or other improvised presses, then heated in an acid-proof kettle up to 110° F. The fruit juice may then be poured into ordinary hot jars, hot bottles, or tin cans and handled by the same directions as those for canning of fruit itself. If poured into miscellaneous bottles, it is suggested that the fruit juice be sterilized as follows:

Make a cotton stopper and press into the neck of the bottle and leave during the sterilization period. Set bottles in boiling hot water up to the neck of the bottle, sterilize the fruit juice for 40 minutes at a temperature of 165° F. Remove the product, press cork in top over cotton stopper immediately. If the cork fits well, no paraffin need be used. If a poor cork, it may be necessary to dip the cork in a melted solution of wax or paraffin. Fruit juices and apple cider when handled in this way will not "flatten in taste" and will keep fresh for future use.

Grape Juice by Two-Day Method.

For home use there are a large number of varieties of grapes which will make a pleasant and healthful drink. No matter what the kind of grape, however, only clean, sound fruit should be used, and it should be well ripened, but not overripe. The grapes should first be crushed and pressed in an ordinary cider mill, or by hand if no mill is available.

Light-colored juice.—After the juice is pressed out the subsequent procedure depends upon whether a white or a red juice is desired. For a light-colored juice the crushed grapes are put into a cloth sack and twisted until the greater part of the juice is extracted, one person holding each end of the sack. The juice is then put in some convenient form of double boiler, in which it does not come into direct contact with the fire, but is surrounded by hot water, and gradually heated to a temperature close to 200° F.; however, it should not be allowed to go over this point. If no thermometer is available, it is best to heat the juice until it steams and then to take it from the fire before it is allowed to boil. It should then be poured into a glass or enameled vessel and allowed to settle for 24 hours, after which it can be drained from the sediment and run through some form of cloth filter. The strained juice is then put into clean bottles and sterilized once more in a water bath. An ordinary wash boiler with a thin board on the bottom for the filled bottles to rest on is a convenient home device for this purpose. After sterilization the bottles should be corked immediately with new corks, the corks having been previously soaked for about 30 minutes in hot water.

Red juice.—For red juice the crushed grapes are first heated to the same temperature as before and then strained through a clean cloth or drip bag without pressure. Thereafter the process is the same as for light-colored juice.

Grape juice should be stored away in bottles or jars that are not too large, for after these have been opened the juice is likely to spoil. If properly made, however, the juice should keep indefinitely as long as it is kept in sealed bottles. In this respect it is, of course, like other canned goods, which should always be used as soon as possible after they have been opened.

Sirup from Windfall Apples and Cider.

Add 5 ounces of powdered calcium carbonate to 7 gallons of apple cider. Powdered calcium carbonate (carbonate of lime) or, to give it its common name, precipitated chalk, is low-priced and harmless. Boil the mixture in a kettle or vat vigorously for five minutes. Pour the liquid into vessels, preferably glass jars or pitchers; allow to stand six or eight hours, or until perfectly clear. Pour the clear liquid into a preserving kettle. Do not allow sediment at bottom to enter. Add to the clear liquid one level teaspoonful of lime carbonate and stir thoroughly. The process is completed by boiling down rapidly to a clear liquid. Use density gauge or candy thermometer and bring the temperature up to 220° F. If a thermometer is not available, boil until bulk is reduced to one-seventh of the original volume. To determine whether the sirup is cooked enough test as for candy—by pouring a little into cold water. If boiled enough it should have the consistency of maple sirup. It should not be cooked long enough to harden like candy when tested.

When the test shows that the sirup has been cooked enough, pour it into fruit jars, pitchers, etc., and allow it to cool slowly. Slow cooling is important, as otherwise the suspended matter will not settle properly and the sirup will be cloudy.

A good way to insure slow cooling is to stand the vessels, full of sirup, in a bucket or a wash boiler of hot water or to place them in a fireless cooker. The white sediment which settles out during cooking is called "malate of lime" and is a harmless compound of lime with the natural acid of the apple. When the sirup is cooled, it should be stored in fruit jars, bottles, or jugs and crocks. Place the rubber and cap or cotton stopper or cork in position and tighten. Place the container in boiling-hot water and sterilize for the length of time given below for the particular type of outfit used:

	Minutes.
Water bath, homemade or commercial	15
Water seal, 214°	10
5 pounds steam pressure	8
10 pounds steam pressure	5

Remove jars and tighten covers. Invert to cool, and test the joints. Store for future use. This recipe is for making sirup primarily for home consumption. If the product is to be sold legal requirements as to labeling should be ascertained and complied with.

Muscadine-Grape Sirup.

Since no sugar is used in making it, the sirup is one of the cheapest of the culinary products made from Muscadine grapes. It can be utilized not only as a substitute for sorghum and other sirups, but also as a sugar substitute for sweetening unfermented Muscadine grape juice and in making sirup for canning grapes. Following are brief directions for making the sirup:

Directions for sirup making.—Use well-ripened fruit of the sweetest varieties available. Secure all juice obtainable by crushing and pressing without heating. Remove any sediment that may have accumulated while the grapes were being crushed and pressed by straining the juice through a double thickness of cheesecloth. For every 6 quarts of fresh, strained Muscadine grape juice stir in 2 ounces of powdered calcium carbonate (i. e., carbonate of lime, a low-priced chemical used in sirup making to remove acids). Heat the juice and allow it to boil about eight minutes. It is necessary to use a container at least one-third larger than the volume of juice in order to prevent the vessel from overflowing when the juice foams up and breaks into a boil. Where a large vessel is not available the juice may be boiled in small quantities. Pour the hot liquid into tall glass containers, preferably large-mouthed fruit jars, so as to permit its condition to be observed. Allow the liquid to settle until perfectly clear and cool. It is well to let it stand over night. After the liquid is cool and clear, showing a distinct sediment at the bottom, pour off the clear portion into a cooking vessel, being careful

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(For use in the Southern States)

not to pour off any of the sediment. To this clear liquid add one-sixth of a level teaspoonful of calcium carbonate for each six quarts of fresh grape juice which it represents.

Complete the process of sirup making by boiling down the clear liquid, using a vessel one-third larger than the volume of the liquid. If necessary, the sirup can be completed in batches. While boiling down the liquid keep the caramel which forms on the inside of the pan wiped off with a wet cloth, so that when the nearly finished product foams up it will not carry scorched caramel into the sirup. Should any scum form during the cooking process remove it with a long-handled milk skimmer. Allow the liquid to boil rapidly until nearly done, and then more slowly, to avoid scorching. Cook the liquid until it reaches about one-ninth the volume of the fresh grape juice, or until a small portion cooled in a teaspoon on the surface of cold water in a cup shows about the same consistency as maple sirup or thin sorghum sirup.

When the sirup has reached the proper thickness, pour it into glass fruit jars, cap the jars, and place them where they will cool very slowly. Slow cooling is very important in making the sirup clear, as it allows all sediment and added substances to settle. This slow cooling can be brought about by standing the jars of sirup in a large vessel of hot water and allowing the whole to cool or, better still, by placing the jars in a fireless cooker. One of these can be made at home by placing waste cotton, such as may be procured from a cotton gin, in a worn-out bucket or box, leaving a place in the center for the jar of hot sirup.

When the sirup has cooled to room temperature it can be stored in a pantry or cellar until desired for use. A small quantity of harmless white sediment, known to chemists as malate and tartrate of lime, will be observed in the bottom of the jars. When desired for use simply pour the clear sirup into the table sirup stand, leaving the sediment, which is not easily disturbed, behind. Those who prefer, however, can pour off the clear sirup into bottles or fruit jars as soon as it has cooled and then sterilize and seal them warm, just as with fruit. Sterilization consists merely in heating the jars of sirup to the boiling point. The filled jars and the caps for sealing them are placed in a pan of water, which is then brought to a boil and held at that point until the contents of the jars are approximately of the same temperature.

Growing children need more tissue-building foods than do persons whose growth is completed. Milk, eggs, meat, fish, cheese, and legumes are all tissue-building foods, but milk and eggs are best for young children.

TO HOUSEWIVES.

You Will Render a Definite National Service by Putting Up Perishables.

"Mrs. Housewife, are you canning and preserving perishable fruits and vegetables now?" is the question sent out from the Nation's Capital by David F. Houston, Secretary of Agriculture.

"The Department of Agriculture realizes that it is the desire of every woman in the country to serve the Nation in this great crisis," said Secretary Houston, "and I wish therefore to suggest particular ways in which women can render a definite national service. I urge not only that every home assist in the conservation of the surplus perishable fruits and vegetables by canning, preserving, pickling, drying, and storing, but also that every experienced woman place her knowledge at the disposal of her neighbors.

"At the beginning of the war the farmer and gardener responded promptly to the appeal issued by the President, and nature has been bountiful. Now is the time for the consumers to do their share.

Those Who Can Can Asked to Help Others.

"Specifically, may I not suggest that every woman take steps to do her share to call meetings of members of organizations to which she belongs for the discussion of the subject of the conservation of perishable products. At these meetings those members of the organizations or others who are known to be skilled in canning, preserving, etc., might be invited to give demonstrations of these processes. That the community generally may benefit by these gatherings, I suggest that, through local newspapers, invitation be extended to the public to attend, and that the local press be asked to report the meetings so that the propaganda may be spread among those not present. More than one meeting should be held. In fact, during the next several weeks, when the harvesting season is at its height, frequent gatherings of this kind would be helpful.

Cooperate with Local Food Officials.

"It seems to me desirable also that women's organizations should cooperate with the local food officials, so as to be able to utilize surplus perishable fruits or vegetables consigned to markets unable to absorb them.

"It is of the first importance that these perishable crops shall not be wasted. They must be consumed locally to as large an extent as possible, thereby lessening the drain on our store of staple products and relieving the pressure upon the transportation agencies.

"The season for the conservation of perishable foods is a short one, and I feel that efforts expended now by the women of the Nation for a period of three or four weeks will accomplish a splendid and valuable work."

DRY
Perishable Fruits and Vegetables
SEND TO-DAY
For Farmers' Bulletin 841

GOOD WAY TO CAN TOMATOES.

A good, economical way to can tomatoes in the South, says the United States Department of Agriculture, is to pack firm, whole fruits in a jar and fill in the spaces with a concentrated tomato sauce. Each quart jar then will provide whole tomatoes for salads or baking and a tomato puree for soups or sauces. The department's recipe is as follows:

Details of Method.

Select firm, uniformly red, ripe tomatoes of medium size. Put into trays and lower into boiling water for 1 minute. Remove, plunge into cold water, drain, and cut out the core with a slender-pointed knife without cutting into the seed cells. Peel promptly and pack into jars. To each pint add one level teaspoonful of a mixture of one-third salt and two-thirds sugar. Fill the jars with a thick tomato sauce made by cooking the small or broken tomatoes until tender. Remove the seeds and skins by straining the pulp—and concentrate it by boiling to about the consistency of ketchup. Adjust the rubber and cap, place the packed jars on a false bottom in a vessel of water which reaches almost to their tops, and keep at boiling temperature for 25 minutes. Remove the jars from the water bath and tighten the covers immediately.

TO ENCOURAGE FIBER GROWING.

To encourage an extension of production of sisal and other hard fibers in the Philippine Islands the Bureau of Plant Industry of the United States Department of Agriculture has recently sent a fiber-crop expert to the islands. H. T. Edwards, the representative, will cooperate with the fiber-crop division of the Philippine Bureau of Agriculture in the work. Fiber crops already are grown to some extent in the islands.

World production of the hard fibers, used in the manufacture of binding twine and other materials, is not keeping pace with the increasing demands, according to officials of the department. It is certain that there are large areas in the Philippines which might be utilized to increase the supply substantially.

SMALL CITY MARKETS.

Aids to Marketing Perishables—Of Service to Home Canners—Relieves Transportation Facilities.

"There are many localities where production is large and consumers can immediately relieve the strain on shipping facilities by informing themselves of the time of most abundant surpluses, and by canning, preserving, and drying perishable fruits and vegetables at that time." said Charles J. Brand, Chief of the Bureau of Markets, United States Department of Agriculture, recently.

"In some towns and cities," said Mr. Brand, "it would be possible to establish small city markets, to which neighboring producers could being their surpluses. This has already been done with success in some places. In one little town in New York State a newly formed 'market club' built a covered market stand, to which producers brought in their perishable fruits and vegetables by auto, by wagon, and by hand from the surrounding country.

Makes Gardening Profitable.

"Such a step as this puts new life and activity into the 'war-garden' work, because it makes the growing of fresh vegetables and fruits profitable, at the same time reducing the strain on the transportation systems.

"It is not the best economy to ship perishable foods long distances to be preserved or canned, when products can be had just as well at the point of production. No locality should be in such a hurry to begin operations as to order supplies in from sections of the country where that particular foodstuff comes to maturity earlier. Canning and preserving should be done at the time of the greatest local production or when products are being shipped in most plentifully.

Avoid Crosshauling, if Possible.

"There is another way in which local consumption can help in easing the transportation problems of the country," continued Mr. Brand. "Everybody knows that there is a considerable amount of what is called 'crosshauling.' For example, there has been crosshauling of coal from Illinois mines to Ohio and Michigan, and at the same time from Ohio mines to Illinois and Indiana. Our reports indicate that there may be a somewhat similar case with sweet and Irish potatoes this year. There is a great crop of sweet potatoes promised in the South, and these will be shipped north while Irish potatoes are being shipped south. Obviously, it would effect a great saving in transportation if the South could be induced to use more of its own crop than it is accustomed to use.

"The department does not have any desire to check the movement of commodities to the best markets, but if the people of any producing section can be persuaded to consume a greater portion of the local product there will be a distinct saving in the immediately available transportation space.

Provide Storage in Local Centers.

"In addition much can be accomplished by providing storage at the centers of production for apples and such fall vegetables as potatoes, cabbage, onions, and turnips. This will make it possible to spread out the shipments of these products over a considerable period, when otherwise there would be a call all at once at harvest time for large supplies of cars to move them to the large storage centers."

It is estimated by experts of the United States Department of Agriculture that if every citizen cooperated fully in securing the use of local foods, these could be made to take the place on the tables of the Nation of at least 120,000 tons of sugar, 1,000,000 tons of flour, and 1,200,000 tons of meats.

FOR HOUSEWIVES.

How to use fresh fruit and vegetables as conservers of staple food is the subject of a new Farmers' Bulletin, 871, issued by the United States Department of Agriculture. In order that this bulletin may be ready in practically unlimited quantities for the emergency campaign now being conducted by the department to save perishable fruits and vegetables which are going to waste in 24 States of the Union, orders were given to the Government Printing Office to put this bulletin on fast presses.

Between 40,000 and 50,000 copies can be turned out daily, and this rate will be kept up as long as the need and the demand last. Copies will be mailed free on request to the Division of Publications, Department of Agriculture, Washington, D. C.

Remember that starch is a cheap kind of body fuel; corn meal contains about 75 per cent of starch.

PICKLE CABBAGE

Write TO-DAY to the United States Department of Agriculture for directions for making sauerkraut out of cabbage and for fermenting beans, beets, and cucumbers : :

MAKE SAUERKRAUT.

Simple Home Treatment Will Conserve Cabbage, String Beans, Cucumbers, and Beets.

Now is the time to make sauerkraut, say officials of the United States Department of Agriculture. Tremendous rainfall throughout the country has resulted in an enormous cabbage crop. Nine out of every 10 pounds of cabbage is water. Lack of rain last year sent the price of cabbage from $2 and $5 a ton to $100 and $200.

One million dollars worth of last year's crop of cabbage was made into sauerkraut, but even so there was such a shortage of this valuable food material that the price rose from $3.50 a barrel to $35.

Fermenting an Ancient Art.

The ancient art of pickling or fermenting food, as a cheap and simple means of preserving it in large quantities, is highly indorsed by the department's experts. On account of the great development of canning industries, this healthful method of food preservation has been lost sight of in recent years in the individual homes, but it now offers a safe and sane method of caring for the perishable products coming on to the market in quantities too great for immediate consumption.

Advantages of Method.

The advantages of this method of food conservation, by use of salt brine, say the department's officials, are that it is simple, requires little labor, practically no outlay of capital, and takes care of food in larger quantities. The method also lends variety to the home menu. The ferment which develops in the food is thought by some to have a beneficial effect on the health. It is the same acid that develops in sour milk, which has had such a wide vogue as a healthful beverage. Uncle Sam has been quick to appreciate the value of fermented food in the diet of soldiers, and has ordered large quantities of cucumber pickles, sauerkraut, etc. Not only cabbage, cucumbers, and beets can be very successfully preserved at home by this process, but string beans, beet tops, turnip tops, and other food materials which would otherwise go to waste.

Fermentation of vegetables is successful either in Northern or Southern States. Full information will be sent by the department to anyone wishing full details regarding the method, which was fully described in News Letter No. 47, June 27, 1917.

When skim milk is used instead of water in cooking cereals, unless a double boiler is used, greater care must be taken to prevent burning.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., AUGUST 22, 1917. No. 3

EXTENSION IN GOVERNMENT'S FOOD PRODUCTION WORK.

U. S. Department of Agriculture to Attack on Larger Scale Problem of Maintaining Ample Food Supply During the War—$11,346,400 to Be Spent Stimulating Production and Protecting and Conserving Crops.

The food production act was signed by the President and became a law on August 10. This act, the principal features of which are explained in this issue, should not be confused with the food control act, a separate measure, which became a law on the same date.

The food production act provides additional funds for the extension of the activities of the United States Department of Agriculture in many directions, as indicated below. It will be administered through the Department of Agriculture. The food control act contains a number of powers affecting the control and distribution of foods and also powers affecting a number of other commodities. The powers affecting the control and distribution of foods will be exercised through the Food Administrator. What agencies will deal with the powers in the food control act affecting other commodities than foods has not yet been indicated.

The task of maintaining during the war an ample supply of food will be attacked on a still larger scale by the United States Department of Agriculture through a score or more of projects, under the provisions of the food production bill just enacted by Congress.

While most of the projects will be extensions of present activities, some of them will represent new undertakings. The task will be to find just where the country stands in so far as the adequacy of the present food supply is concerned, to speed up the production of food crops wherever this can be done, and to stop as many as possible of the leaks through which hundreds of millions of dollars' worth of edible products annually is wasted. Eleven million three hundred and forty-six thousand four hundred dollars are made available for the work in the food production act. This money is for emergency use in addition to the funds appropriated in the regular agricultural appropriation act for the usual activities of the department. The act also is distinct from the food control act, a measure having to do chiefly with the regulation of the distribution of food.

To Increase County Agent Force.

One of the most important steps to be taken in the emergency agricultural work will be the extension of the existing force of county agents—the joint field employees of the department and the States who come into most direct contact with farmers. With the addition of the new county agents an agent will be situated in practically every agricultural county in the United States that will cooperate to advise and assist farmers in every way possible on matters of production, conservation, and marketing. The number of women county agents in rural counties will be considerably increased, and other women agents will be placed in a number of the larger towns and cities. These women will stimulate the production of garden truck, poultry, and other products by women and children and will advise and instruct in regard to the most efficient methods of food utilization and conservation.

To Attack Labor and Food Problems.

Under the food production act the Office of Farm Management of the department, in cooperation with the United States Department of Labor, will extend the farm-help activities through which farm laborers and the farmers who most need them have been brought together during the present season.

The third of the more important of the emergency projects to be carried out by the Department of Agriculture is a quick survey of the food situation. This activity will be for the purpose of ascertaining as accurately as possible the condition of the country's food stores and the normal consumption, in order that such action as may be necessary to insure a sufficient supply may be taken intelligently. Farm stocks and supplies in retail stores and in the hands of consumers will be estimated, and stocks held by wholesale, jobbing, storing, manufacturing, and other commercial establishments will be enumerated. It is contemplated that the survey will be followed by monthly reports on several of the more important commodities and, if the emergency requires it, by another survey after an interval of perhaps six months.

Production Will Be Stimulated.

In addition to the activities under the three projects mentioned, special work will be undertaken by many of the bureaus and offices of the Department of Agriculture in the interest of increased production, and for the conservation, protection, and improved handling and marketing of crops and live stock. The Bureau of Animal Industry will seek to bring about increased production of hogs and poultry, the two live-stock products capable of most rapid increase. The agents of this bureau also will locate surpluses of hogs in heavy-producing areas and farmers in other sections of the country with good facilities for hog raising, in the effort to bring about more economical distribution of hogs. Efforts also will be made indirectly to increase animal production by combating animal diseases and pests, especially hog cholera, tuberculosis, and the cattle tick, which cause losses aggregating millions of dollars annually. The bureau also will endeavor to stimulate the increased production and utilization of dairy food; and will carry on a campaign for the more general production of infertile eggs.

The Bureau of Entomology will extend its activities in the field to protect crops and live stock. It will assist in organizing communities for combating insect pests, both of crops and live stock.

Marketing Assistance to Be Extended.

Producers will be given advice by the Bureau of Markets regarding improved methods of packing and handling food products. The bureau also will extend its market-news services to include grain, hay, and seeds, dairy and poultry products, and to cover more fully vegetables and fruits and meats and meat products, and will assist in solving local truck-marketing problems. These services will make public facts as to supply, demand, and movement of food products, intended to help in the elimination of the lost motion and economic waste existing in the marketing machinery of the country. The bureau also will help producers and consumers to form direct business relations through the parcel post.

With the extra funds furnished by the act the Bureau of Plant Industry will greatly increase its war against destructive plant diseases which annually bring about the loss

of considerable proportions of the crops of the country. The bureau also will seek to bring about increased conservation of food products by encouraging natural storage and drying of the products best suited to these methods of preservation.

Conserving Farm Products and Animals.

Under the food production act the department's work for the conservation of farm products, including live stock, will be greatly extended. The States Relations Service will add to its staff many county and city agents who will give instructions and demonstrations to all parts of the country in canning, drying, and the preparation of food products in other forms which will protect them against spoilage. The Bureau of Markets will seek to reduce losses due to faulty handling, packing, shipping, and marketing. The Bureau of Plant Industry will endeavor to arouse interest in the natural storage during the fall and winter months of semi-perishable products. Forces making for the conservation of live stock and animal products will be put into operation by the Bureau of Animal Industry. This work will include, as already mentioned, campaigns for the reduction of losses of live stock from animal diseases, losses of eggs through faulty handling and from failure to produce infertile eggs, and movements to assist in the more economical distribution of hogs. In the latter work field agents of the Bureau of Animal Industry will bring together owners of surplus hogs and farmers having facilities for raising more hogs. This should result in the distribution of the surplus stock from regions of heavy animal production and expensive feed to parts of the country where animal industry is not well developed and where pasturage and feed are relatively abundant and cheap. The bill also makes provision for the extension of other lines of the work of the department.

WHAT THE FOOD PRODUCTION ACT PROVIDES.

Eleven million three hundred and forty-six thousand four hundred dollars to be used in stimulating production, for protecting and conserving foods, and for a survey of the country's food resources.

Staff of county agents to be increased until at least one agent will be stationed in practically every agricultural county in the United States that will cooperate with the department and the State agricultural college.

Women county agents for demonstration work in home economics to be increased in rural counties and similar agents to be placed in towns and cities for the first time.

Farm-help service to be extended in cooperation with United States Department of Labor to assist in bringing farmers and farm laborers together.

Country-wide survey to be made of food on farms, in storage, in shops, and in homes. Estimates of family consumption of food to be made.

Extension of crop estimating to crops not hitherto reported and to include special inquiries to gather information on extraordinary farm conditions.

Hog and poultry production to be stimulated as far as practicable.

Increased production and conservation of dairy foods to be encouraged.

Animal diseases to be combated on larger scale.

Increased efforts to be made to combat insect pests of plants and animals.

Further steps to be taken to destroy animal pests and predatory animals which injure crops and kill live stock.

Work for the control of plant diseases to be extended.

Survey of seed supplies and needs to be made and results published so that farmers will be assisted in obtaining a sufficient supply of good seed. Seed to be purchased and sold to farmers by the department if necessary in restricted areas.

Demonstrations to be carried out in the proper handling, packing, shipping, and marketing of perishable fruits and vegetables to decrease spoilage.

News service for various farm products to be extended so that producers and consumers can be better informed as to the supply and demand and can sell and buy with less expense, less spoilage, and less lost motion.

LOCAL TRUCK MARKETING.

Bureau of Markets to Assist in Solution of Problems.

In order to assist in the solution of local marketing problems that may arise this summer from the heavy planting in home gardens, the Bureau of Markets of the United States Department of Agriculture, with funds just made available in the food production act, hopes to be able to place representatives in some of the larger cities of the country that are located in well-developed trucking areas and in which local marketing troubles are acute. In connection with this work the bureau also will endeavor to assist in the solution of emergency problems that may arise with reference to the retail movement of specific crops, whether of local or other origin.

It is expected that these representatives will find it desirable to make surveys of both the home and commercial truck gardens of the city and tributary territory in order to forecast the nature of the marketing difficulties which may arise. Where a public farmers' market exists, an effort will be made to increase its efficiency, and where none exists, advisory aid will be given, if the city desires, in the establishment of such an agency. It is planned, through the local newspapers, to keep consumers informed in regard to present and probable future supplies of various products and to advise in regard to the times when special products for canning or drying may be purchased most advantageously.

If it is seen that larger quantities of produce will come to the market than can be utilized in ordinary ways, assistance will be given in devising means to make use of the surplus.

Where farmers' markets exist it is hoped that load reports can be collected from farmers as they arrive on the market, so that information on the supplies brought in and estimates of supplies for the following day can be posted as soon as possible to give both producers and purchasers a trustworthy gauge for arriving at reasonable prices.

TO INSPECT PERISHABLES.

The food production act authorizes the Bureau of Markets, United States Department of Agriculture, to conduct an inspection service in order to certify to shippers the condition as to soundness of fruits and vegetables and other food products when received at important central markets to be designated by the Secretary of Agriculture.

The service should stimulate proper grading and packing of products intended for shipment and also should have a considerable effect in increasing next year's production, as it will tend to inspire confidence in the minds of producers and will cause farmers to send to the market certain highly perishable commodities which are not now shipped because of persistent reports of arrival in bad condition.

This work still is in a more or less experimental stage, although experiments conducted at Fort Worth, Tex., in the fall of 1916 demonstrated its practicability and educational value to shippers. One or more inspectors will be placed in the more important markets to handle cars regarding which complaints have been received from shippers or receivers. The number of inspectors to be stationed in each city will depend not only upon the size of the market but upon the number of commodities to be covered by the service.

It is contemplated that certain phases of this work will be conducted in cooperation with the United States Food Administration.

THRIFT THOUGHT.

A pleasing variation from pastry meat pies may be had by preparing eggplant and meat pie, says the United States Department of Agriculture.

Eggplant and Meat Pie.

Cook together in a baking pan alternate layers of eggplant and chopped cooked meat, salted to taste. If raw meat only is available it may be fried until brown before baking. Tomato juice or pulp, or a few sliced tomatoes may be added if desired.

FOOD SURVEY AT ONCE.

Department Will Begin Immediately to Gather Statistics on Nation's Food Supply.

The Government is to take stock of the Nation's food supply.

In order that the President, Congress, and the other officials of the Government may be able to base needed action on a knowledge of what the national larder contains, and how it measures up to the needs of the millions of breakfast, dinner, and supper tables of the Nation, the United States Department of Agriculture will begin immediately to make a quick survey of available foods and feeds throughout the country. This will cover supplies on the farms, in factories, and commercial stores and warehouses, in retail shops, and on the shelves and in the bins of the family pantry. The work will be carried on principally by the Bureau of Markets, the Bureau of Crop Estimates, the Bureau of Chemistry, and States Relations Service of the department, with funds appropriated for the purpose in the recently enacted food production bill.

The survey is to be made as of the date August 31, and it is expected that statistics on the amounts of certain important products can be supplied within three or four weeks after the food survey is begun.

Inventories and Estimates to Be Used.

In carrying out the nation-wide food survey, both actual inventories and estimates will be employed. Estimates of the food and feed products on farms will be made for the whole country by the Bureau of Crop Estimates through 35,000 picked cooperators in the field.

Information regarding stocks in wholesale, jobbing, storing, manufacturing, and other commercial establishments, including large retail houses, will be obtained by requesting from each concern a statement of the exact amount of each of the various products held by it. Comprehensive lists of such establishments compiled by the Bureau of Markets within the last few years will be employed in this work.

The stocks on hand in small retail shops will be estimated from information gained from a detailed survey of stocks in a number of representative districts. Stocks in the hands of all the consumers of the country will be estimated similarly from canvasses of a large number of representative families, both in the country and in the cities. The study of families will be concerned even more with the current consumption per month than with the actual stock of food supplies on hand. Small retail stocks will be reported for representative cities by the Bureau of Chemistry through its food and drug inspectors and State and local health officials and inspectors, and for representative country districts by the States Relations Service through county agents and local farm bureaus and other local agencies. Through these agencies certain selected districts will be canvassed and an estimate will then be made for the entire country.

Products to Be Surveyed.

The nearly 100 items on which statistics are to be gathered include grains and seeds, grain food products, dried fruits and nuts, vegetable fats, sugar, sirups, starch, meat and meat products, food products preserved in tin and other containers, dairy and related products, fish, and feeds.

The department's plans contemplate making immediately a quick survey of the holidays of approximately 18 of the more important products, following this with monthly reports on such products and making a more complete survey after the crops have been gathered. It is proposed to utilize in so far as possible existing established agencies within the department in the conduct of the survey, but the department, of course, desires the hearty cooperation and support of all State and local agencies.

TO TEACH INSECT FIGHTING.

Campaign to Make Every Farmer and Food Keeper an Effective Fighter of Injurious Pests.

In an effort to reduce the enormous annual loss of food caused by attacks of insects on growing crops, stored food supplies, and live stock the Bureau of Entomology of the United States Department of Agriculture, in cooperation with the extension services of the States, is to begin a vigorous campaign to teach insect fighting.

Covering the country as effectively as possible with emergency funds made available in the food production bill just enacted by Congress the entomologists will deal with every pest of important crops. Should the campaign planned result in a reduction of only 5 per cent of present losses from insects an amount aggregating millions of bushels it is estimated would be saved. It is expected that an effective campaign would result in even a larger saving.

Specialists will give demonstrations to small groups of farmers, fruit growers, and others in regions where their services are most needed. Wherever it can be done persons in the community where the demonstration is being conducted will be asked to assist in preparing spray mixtures, emulsions, poisoned baits, dips, washes, and the like. These persons, so far as practicable, then will be requested to assist in the application of these and other measures in order that each community in which demonstrations are given will have one or more persons acquainted with methods of assembling and applying insecticides and in the use of other remedial measures.

Specialists in rice insects will visit rice fields. Men familiar with the insect pests of the orchard and vineyard will be sent to those States where fruit growing is an important industry. In the large trucking areas of the country and elsewhere specialists familiar with the insects of truck crops will be detailed. Men familiar with the insect pests of cereal and forage crops will work in States where these crops are of most importance, and will give special attention to such important pests as the Hessian fly, chinch bug, and joint worms.

In case of serious insect outbreaks men will be available to concentrate effort in the infested territory, to prevent, if possible, further spread of the pest. It is planned to give attention also to demonstrating and disseminating information about methods for the prevention of insect losses to stored grains, flour, and other products, in mills, warehouses, and granaries, and for the reduction of losses to other stored food products.

FARM LABOR PROBLEM.

The extension of the activities of the United States Department of Agriculture dealing with the farm labor problem is made possible through the food production act, which provides funds for this purpose. The department, in cooperation with the Department of Labor, has been endeavoring to bring about better organization of the labor remaining on farms and to call into service available labor which heretofore has not been fully or regularly utilized in farming operations. Representatives have been detailed to cooperate with the State officials in charge of labor matters, the State agricultural colleges, the county agents, and the county or local township labor committees or representatives.

The food production act, by making available additional funds, will enable the department to render still more effective cooperation with the State and other labor agencies, both in determining local labor needs and supplies, and in effecting economic distribution.

It is essential to feed a considerable proportion of beef scrap in the mash if a wheatless ration is used for egg production.

The sows that are to farrow in the fall should be kept on pasture and have shade and plenty of water.

MORE COUNTY AGENTS.

Extension Workers in Agriculture and Home Economics to Be Placed in More Counties and in Cities.

Plans have been made to expand immediately the cooperative extension work of the United States Department of Agriculture and the State agricultural colleges by a large increase in the number of county agricultural agents and home demonstration agents. This extension is made possible by funds appropriated in the recently enacted food production bill. Women agents will be placed for the first time in the larger towns and cities. More or less technical training in agriculture and home economics will be required in this service. The appointments are to be made on the recommendation of the director of extension work at the State college. Approximately 1,400 men agents and 500 women agents are at present employed. The plans formulated contemplate the extension of the men county agent work to all the rural counties of the Union in which there is a need for the work and the placing of an additional agent in some of the larger counties already organized. They also contemplate a considerable increase in the number of women agents engaged in extension activities. The number to be employed will depend upon the number of trained men and women available. Proved ability in leadership as well as technical training will be required.

City Agents for First Time.

The use of city agents in the conduct of the extension work of the department is a new departure made desirable by the importance attached in the present food crisis of the world to the conservation and efficient utilization of foods. The city demonstration work will be carried on by women agents who will work in cooperation with the existing organizations of women.

The aim of the extension work is to carry directly to as many people as possible information in regard to proved methods of agricultural production and home economics. Economy in the purchase and use of food, and methods of food conservation by canning, drying, etc., will be emphasized. The men county agents are concerned chiefly with agricultural production, while the women are employed in demonstration work in home economics.

Boys and Girls to Be Enlisted in Club Work.

With funds furnished in the food production act the States Relations Service also will seek greatly to enlarge the enrollment of young people in the boys' and girls' clubs which are devoted to increasing agricultural production and conserving the food supply through canning, drying, and other means.

The service also will work out problems in the efficient utilization of various foods and will aid institutions devoted to agricultural education to plan courses of instruction especially suited to the present emergency.

TO FIGHT PLANT DISEASES.

Campaign Against Destructive Maladies Which Reduce Crop Yields Planned.

Destructive plant diseases which annually make heavy inroads into the crops of the country are to be attacked with renewed energy by the United States Department of Agriculture. The extended work is made possible by appropriations carried in the food production bill which has just been enacted by Congress.

Special work will be undertaken by the Bureau of Plant Industry with a view to reduction of the destructive epidemics of black rust in the spring-wheat areas and reduction of the injury from grain smut, especially in the Central and Western States. The bureau also will place in the field additional expert pathologists to advise county agents especially in the control of destructive diseases of potatoes, beans, and truck crops, and will undertake special surveys to determine the causes of injury in regions suffering heavy losses from plant diseases in order that control measures may be undertaken promptly.

In addition to its work for the control of plant diseases, the Bureau of Plant Industry will seek to stimulate the conservation of food products by demonstrating proper methods of storing such crops as may be stored in common storage, by improving the methods of storage, and by demonstrating the drying of farm products.

TO ASSIST DIRECT MARKETING.

Renewed efforts through a staff of field agents to bring about an increase in direct marketing by use of the parcel post, express, and similar agencies will be made by the Bureau of Markets of the United States Department of Agriculture with funds made available in the recently enacted food production bill. Agents will be placed in several large cities throughout the country to awaken interest in direct marketing among consumers. At the same time the agents will work through the postmasters of small towns in their territory to interest producers in furnishing supplies.

This will be the first intensive field work in behalf of parcel-post marketing that the Bureau of Markets has been in a position to carry on. It should result in the formulation of carefully selected lists of producers who may be depended on to supply various products directly to consumers.

MARKET NEWS SERVICE.

Bureau of Markets to Open Several New Branch Offices—Additional Products to Be Reported.

To give producers, dealers, and consumers more complete and accurate information regarding the current production, market receipts, accumulations both in and out of storage, and market demands for dairy and poultry products, the Bureau of Markets of the United States Department of Agriculture will begin immediately under its emergency appropriations in the food production act an experimental market news service dealing with these products. The publication of the basic facts in regard to the marketing of these products should lessen the risks assumed by those dealing in them and eliminate waste motion in their market distribution. This in turn should aid in reducing marketing expenses to the benefit of producers, dealers, and consumers.

In general the news service for dairy and poultry products will be closely comparable to the market news service for shippers of perishable fruits and vegetables, and live stock and meats, which has been developed within the last two years and in effect it will be an extension of that service. The aim will be to furnish accurate reports as to the total quantities of commercial stocks on hand in consuming centers, the quantities in storage, and the quantities imported and exported, which will permit comparisons to be made of the stocks available at any time with those available at previous periods.

The information will be gathered by field agents located in a number of important markets and from cheese factories and creameries and car-lot shippers of eggs and poultry in many parts of the country. The information will be distributed from Washington and from various branch offices.

To Report Grain, Hay, and Seeds.

Information which should assist in bringing together with a minimum of expense and trouble producers of grain, hay, and seeds and consumers of these products, such as millers, feeders of cattle, and planters, will be gathered by the bureau through an extension of its market-news service. At present a considerable proportion of the supplies of these products pass to large central markets to be reshipped, in many cases to consuming points situated near the points of production. The furnishing of accurate information in regard to the supplies of grain, hay, and seeds, their location, and the location of the demand for them should eliminate much useless transportation and make for less expensive and more timely distribution.

The service for grain, hay, and seeds will be conducted through agents of the Bureau of Markets in the 10 districts into which the country will be divided, and a large staff of volunteer reporters in the various producing and consuming sections. Reports summarizing the information will be published in Washington and at the branch offices. The Bureau of Crop Estimates will cooperate in the work and will continue to estimate grain, hay, and seed production and stocks on farms. The news service will deal with the supplies when they are about to enter and after they have entered commerce. In the main, especial attention will be given to producing areas and small markets not covered by dependable commercial reports. Importation and exportation will be taken into account as well as movements, stocks, and demand within the United States.

Extension of Service for Fruits and Vegetables.

From 12 to 15 new branch offices for collecting and distributing market news on vegetables and fruits will be opened in the market centers of the country. The bureau also will increase materially its field force in the producing regions. These extensions in the market news service for vegetables and fruits will be made for the purpose of eliminating, to as great an extent as possible, the waste resulting from a lack of full, accurate knowledge of the movement of the various products and the demand existing for them.

The service will maintain some 30 branch offices in the more important market centers of the country and such field stations in producing regions as may be necessary adequately to inform the shippers of the crops upon which reports are made. This service has been in course of development for two years and has proved of value to producers, dealers, and consumers. Its extension, both in regard to territory covered and products dealt with, should make it still more useful to all three classes.

Several of the new branch offices will be established in the Middle and Far West, where no permanent offices have been maintained heretofore. One of the early activities under the emergency appropriation will be the making of a survey of conditions on the Pacific coast to determine the marketing needs in that region. When shipments begin to move from the North to the South, a number of offices will be opened also in the more important southern markets. The service in its new form, therefore, will serve the producers of the entire country instead of a portion as heretofore.

The service already covers fairly well the heaviest shipping areas for strawberries, peaches, tomatoes, cantaloupes, and watermelons, while some other products have been served less fully. Among the important products to be added or for which the service will be extended will be onions, cabbage, potatoes, and apples throughout the season, and sweet potatoes, grapes, celery, and lettuce.

Service for Meats and Live Stock to Be Extended.

The branch offices of the market news service for meats and live stock will be increased from 8 to 20. These offices will be in live stock and meat marketing centers. The staffs of the stations in New York and Chicago also will be enlarged.

The aim of the service is to make market conditions pertaining to meats and meat animals better known to the trade and to stock raisers and feeders in order that marketing may be regulated more nearly in accordance with actual market demands. Beside the daily and weekly reports on meat-trade conditions and prices which now are published at Washington and at eight market centers, the extended service includes daily reports showing carload live stock shipments throughout the country, their destinations classified by markets, transfers to feeding or range sections, reports on actual receipts and shipments at some 60 stockyard points, and other current information of practical use to the industry at large. These reports tend very materially to steady market conditions by giving the producers dependable information on which to base their business operations. In this way profitable production of meat animals will be fostered and furthered to the advantage both of the industry and of the general public.

FOR AN INCREASED MEAT SUPPLY.

To stimulate quick increases in the meat supply, the United States Department of Agriculture will extend throughout the country the pig clubs which have been operated in 15 States and the poultry clubs which have been operated in 9 States. In addition to the 33 specialists in hog production and 39 specialists in poultry production who thus will be placed in the field at once, an additional specialist on hog production will be placed in each of the five principal hog-raising States.

Hogs and poultry have been singled out as the live stock on which special efforts will be concentrated in the campaign for increased meat production, because they give the quickest returns. The various pig and poultry clubs have already interested in the rearing of these animals large numbers of young people who otherwise would not contribute to an increase in food production.

Pasturing the brood sow and her litter keeps them all in good health, the pigs will make satisfactory gains, and there will be a decided saving of grain.

DAIRYING CAMPAIGN.

Dairy Division to Use Emergency Funds to Increase and Improve Output of Dairy Products.

A campaign to have every drop of milk produced in the United States make the fullest possible contribution to the food supply of the country will be launched immediately by the Dairy Division of the United States Department of Agriculture. This campaign will be carried on with funds made available by the food production bill recently enacted by Congress. At present much skim milk and large quantities of other dairy and creamery by-products are fed to farm animals when, according to dairy specialists, a considerable portion of this might more advantageously be made directly into food for human consumption. Dairy products constitute cheap forms of food. Whole milk, skim milk, and cottage and other cheeses are high in protein and are useful substitutes for meats.

In work for fuller utilization of milk in factories, the Dairy Division will devote special attention to cottage-cheese manufacture. Creamery and milk-plant operators will be taught cottage-cheese making by a corps of specialists of the division, milk producers will be encouraged to send as much whole milk as possible to the creameries, and efforts will be made to increase the general consumption of cottage cheese by the public.

Other specialists of the division will aid State extension workers in conducting campaigns for the improvement and increased manufacture of farm-made cottage and cream cheese. These specialists also will conduct demonstrations before groups of farm men and women.

TO COMBAT ANIMAL DISEASES.

A more intensive fight than ever before will be waged by the United States Department of Agriculture on hog cholera and the cattle tick with funds made available by the recently enacted food production bill. Between them, hog cholera and cattle-tick fever cause annual losses of approximately $60,000,000. In an effort to stem these losses and so, in effect, to increase meat production, the department will put a greatly enlarged staff of specialists to work in the field within the next few weeks. Tick eradication, which is essential to building up cattle raising in sections of the South now infested by ticks, will be extended in all affected States. Twenty-five veterinarians will be added to the department's staff to carry on the work against hog cholera throughout the hog-raising sections of the country.

FALL FOOD ACRE.

Late-Crop Area Urged for Farms in South—Will Furnish Food for Family and Feed for Live Stock.

A fall food acre to provide food for the family and feed for the live stock during the fall and early winter is being advocated for farms in the South below Tennessee. Such an acre will furnish a considerable amount of stock feed and therefore will help to conserve the grain. The United States Department of Agriculture emphasizes the fact that it is for these purposes that the acres should be planted and not with a view to market any part of the crops grown. Only such crops should be put in as may be harvested and utilized without extra expense for canning, preserving, and the like.

During July and August in the designated region there may be planted a variety of valuable crops which will mature in fall and early winter; and at least one acre of good land can be found available on almost every farm for this fall food campaign. Proper preparation of the soil and wise selection of crops, it is said, will make possible the growing of much valuable food for home and live stock at little expense.

Plans for the Food Acre.

For the territory below the southern boundary of Tennessee the department suggests plans for a square acre. Modifications in size of plat and crops planted may readily be made to suit local conditions or personal preference. Owing to the scarcity and high price of some seeds it may be sometimes desirable to reduce the size of plat to one-half acre or less and omit some of the suggested crops.

Under the plan suggested about one-half or more of the plat would be planted in food crops, the following being suggested as suitable for planting during July, August, or September:

String beans, peas, beets, carrots, cabbage, onions, potatoes, spinach, kale, and collards.

The remainder of the plat should be sown to such crops as turnips, rutabagas, and rape, either in rows or broadcast, to furnish additional feed for stock or poultry.

Putting the Plan in Action.

The seed dealers of the South are being asked to put up packages of selected seed especially for this campaign in acre and half-acre sizes. These packages will be small in bulk and relatively low in price. Bankers and business men are urged to help by buying these packages in quantity and distributing them at cost to farmers in their communities. County farm demonstration agents are enlisted in the effort to show how much can be done on one acre of ground to provide food for the family and feed for the live stock during the fall and early winter.

HANDLING PERISHABLES.

Proper Methods of Handling, Shipping, and Storing of Fruits and Vegetables to Be Demonstrated.

In an effort to decrease the great waste of perishable fruits and vegetables due to careless and improper handling, which subtracts hundreds of thousands of pounds of food from the country's supply each year, the Bureau of Markets and the Bureau of Plant Industry of the United States Department of Agriculture will, as rapidly as practicable, extend the present demonstrational and investigational work with producers, shippers, carriers, and warehousemen regarding proper methods of handling perishables. This work will be taken up with funds just made available in the food production bill recently enacted by Congress.

Specialists declare that the successful transportation or storage of perishables is primarily dependent upon careful and proper handling methods when being prepared for shipment. If carelessly or improperly handled when harvested and packed, all care exercised thereafter to insure sound condition may be largely ineffective and result in serious loss to the producer as well as loss of foodstuffs to the consumer. Specialists in the harvesting and handling of fruits and vegetables, through demonstrational work and other practicable means in the important producing sections, will reach as many producers and shippers as possible.

These and other specialists also will advise producers in the construction and alteration of storage houses for products that can be successfully stored, especially without artificial refrigeration, and in regard to the most efficient use and management of such storage houses. Specialists declare that losses of fruits and vegetables are high in many well-constructed storage houses merely because the equipment is improperly used.

The department will seek to reduce losses of perishables still further by demonstrating to carriers and urging upon them the use of improved refrigerator cars which give uniformly greater refrigeration efficiency with marked economies as regards ice consumption and in heavier loading. Several thousand refrigerator cars have been built or rebuilt in practical conformity with the results of recent investigations and are in use on many railways. It is the hope of the department specialists that the use of uniformly better equipment may become much more general during the years when war needs make the conservation of food especially important.

MORE EGGS AND PORK.

Animal Husbandry Division's Program Includes Plans Calculated to Stimulate These Industries.

THE PRODUCERS' PART.

To overcome the scarcity and consequent high price of fresh eggs in fall and winter by earlier hatching of chicks throughout the country, beginning about December 1 in the Gulf States.

To remove the chief cause of all egg-spoilage troubles—fertile eggs—by selling male stock after the hatching season and producing infertile eggs.

To save grain in the North, and increase the supply of breeding sows in the Southwest and West by diverting market shipments of fall-farrowed gilts and also pregnant sows to the cheaper winter-feed sections of these regions.

To assist in bringing about these developments is the principal aim of a national program undertaken by the United States Department of Agriculture's Animal Husbandry Division to encourage a quickening of the egg, poultry, and pork industries of the country. They represent some of the extra efforts that will supplement the regular activities of that office in its work to have these industries brought as rapidly as possible to war strength. While the program outlined is calculated to bring about immediate increases in production, the measures advocated represent permanent agricultural practices, not emergency ones.

For Increased Egg Production.

By spreading the doctrine of early hatching of chicks throughout the country, it is hoped to overcome the scarcity of fresh eggs in fall and winter. When hens molt in early summer and late fall, their egg production stops, and prices go up. If pullets were hatched earlier in the season, they could be ready to go on duty while the older hens are laying off, the poultry specialists say, and thus furnish a continuous supply of eggs. The gap in the egg-production period must be closed, it is said, before the prices of fall and winter eggs can be reduced. Hatching should begin in the Gulf States about December 1, or earlier. As pullets begin to lay when they are six to seven and a half months old, farmers can determine the date necessary to hatch, in order to make the period of egg production continuous.

To eliminate the enormous annual losses from egg spoilage, farmers must produce infertile eggs, the specialists declare. The production of infertile eggs necessitates the removal from the pens, immediately after the hatching season, of all mature male fowls. Fertile eggs will spoil as quickly as milk in hot weather. They are responsible for all the "blood rings" and for a large part of the spoilage of eggs in storage.

The department specialists also will urge poultry keepers in villages, towns, and

suburban districts to start their pens with pullets instead of old hens; that, because the first laying season is the most productive, no hens be killed until they have laid for one year; that all male fowls not needed for breeding be sold as broilers, at which stage they are not only worth more but have required less grain for feed.

Pork Production Program.

As a first step to stimulate an increased hog production the department contemplates adding four State pig-club agents to its present staff of 14 and the placing of one swine-husbandry expert in every State which does not now have a pig-club agent. These specialists will devote their attention to general problems of hog production and the organization of pig clubs. Several specific problems will claim the attention of the State representatives. One will be the possibility of stimulating the movement of northern pigs to the South, beginning with the fall litters of 1917, after they are weaned. By such a redistribution these pigs could be raised on winter-pasture crops in the South, thereby saving much corn in the North for other purposes. Market shipments of pregnant sows from northern farms to southern territory also are considered desirable, the specialists believe. They also feel that a similar diversion of surplus hogs from the corn belt to the irrigated farms in the West and Southwest should be encouraged.

Another feature of the hog production program is to encourage the use of city garbage in hog feeding. A study of this subject made by specialists of the Bureau of Animal Industry during the last year indicates that an enormous amount of pork can be produced in this waste product more profitably than by other means of garbage disposal and without the slightest danger to public health.

The application of the program calls for the cooperation of all State and local agencies. The boys' and girls' pig and poultry clubs, which will be encouraged and increased, are to have a prominent part in the work.

THRIFT THOUGHT.

If clean wheat is available, says the United States Department of Agriculture, it may be ground at home in a coffee mill and the following economical and nutritious bread made:

Home-Ground Wheat Bread.

Over a mixture of 1 tablespoonful sugar and 1¼ teaspoonfuls salt in a mixing bowl pour 1¼ cups of hot water or skim milk. When the liquid has become lukewarm, add ½ cake dry yeast or 1 gill liquid yeast and 1½ cups of home-ground wheat flour. Set over night to rise. In the morning add 1½ cups flour, beat well, put into greased pan, allow to rise until the bulk is doubled, and bake.

GOOD HORSES WANTED.

War Department in the Market for Various Classes of Animals Needed for War Purposes.

In the Official Bulletin, under date of July 23, the War Department announced, "*Open Market Purchase Authorized of Animals Needed by the Government for War Purposes.*" Under this announcement any responsible dealer, breeder, or farmer capable of supplying the Government with one or more carloads of animals is invited to furnish the information to Government purchasing officers in the proper remount zones in which he or they may propose to supply the animals. The following information must be furnished:

(*a*) The number of mature specification animals of each of the following classes that he can supply: Cavalry and riding horses, light artillery horses, heavy artillery horses for siege batteries, wheel mules, lead mules, and pack mules.

(*b*) The price per animal at which he will enter into an agreement to supply animals of each class to the Government if called upon to do so.

(*c*) The place where he proposes to offer animals for inspection by Army purchasing boards.

Full particulars as to the specifications of animals, method of inspection, and requirements of inspection plants will be furnished on application to the purchasing officer of any one of the zones.

Territory Embraced in Remount Zones.

The Government purchasing officers charged with the details of buying horses and mules for the Army are as follows:

Depot quartermaster at Fort Keogh remount depot, Fort Keogh, Mont., for the northern remount zone, embracing the following States: Idaho, Minnesota, Montana, North Dakota, Oregon, South Dakota, Utah, Wisconsin, Wyoming, and Washington.

Quartermaster at 410 Scarritt Arcade Building, Kansas City, Mo., for the central remount zone, embracing the following States: Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, and Nebraska.

Depot quartermaster, Fort Reno remount depot, Fort Reno, Darlington, Okla., for the southern remount zone, embracing the following States: Arkansas, Arizona, California, Louisiana, Mississippi, Nevada, New Mexico, Oklahoma, and Texas.

Depot quartermaster, Front Royal remount depot, Front Royal, Va., for the eastern remount zone, embracing the following States: Alabama, Connecticut, Delaware, District of Columbia, Florida, Georgia, Kentucky, Maine, Massachusetts, Maryland, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, and West Virginia.

County agents, in case farmers or groups of farmers have horses and mules to sell direct to the Government, may canvass the situation, ascertain the number and specifications of animals to be furnished, and forward offers of the owners to the proper remount zone of the Government. The general specifications for horses and mules have been furnished to the county agents.

The agricultural colleges and the United States Department of Agriculture, in taking this up through the county agents, are anxious that farmers desiring to sell direct to the Government, should give this plan a trial. It is hoped that by this plan the farmers will be able to get more for their stock and that the Government will be able to obtain better horses than under the contract system.

Cooperative Spirit Desirable.

It is hoped that the farmers will deal in a truly cooperative spirit in undertaking the sale of horses to the Government and see that the War Department receives the best possible service and the highest quality of horses and mules possible to offer.

Farmers interested in the method of procedure should consult with their county agents or the extension service of their State agricultural college.

FOOD SUPPLIES ON FARMS.

Bureau of Crop Estimates, with 35,000 Field Volunteers, Will Handle Farm End of Nation-Wide Inventory.

Determining by a country-wide canvass the approximate amount of important farm products on farms of the United States that is food or convertible into food, is the part the Bureau of Crop Estimates of the United States Department of Agriculture will take in the national food survey authorized by the food production bill recently enacted. Thirty-five thousand picked volunteers from its corps of 150,000 crop correspondents will be asked to take part in the farm survey.

Each of the field representatives, a farmer himself and thoroughly familiar with farm conditions in his community, will make a report of food stocks, including meat animals and crops on his farm and each of these representatives will be supplied with 10 extra schedules of inquiry which he will distribute among his neighbors, for reports upon their respective farms. From the 385,000 reports thus obtained, the experts of the bureau, knowing the total number of farms in the United States, will make final estimates for the farms of the country. It is believed that this estimate, judging from the accuracy of other records similarly gathered, will be within a few per cent of actual farm food stocks.

The farm survey will begin at once. A second survey about November 1, similarly conducted, will cover the fall harvests.

The bureau also will extend its regular crop estimates to crops not reported heretofore and further enlarge its service by special inquiries calculated to gather information arising from extraordinary farm conditions in certain sections.

EWES FOR FARM FLOCKS.

Western Range Ewes Used to Supply Local Demands in Corn Belt and the East—Good Rams Necessary.

The demand for breeding ewes has exhausted the local supply in many sections, the United States Department of Agriculture finds. Western range ewes are being used to start farm flocks in the corn belt and in the East. In the corn belt these ewes have already proved their ability to produce market-topping lambs when mated to good rams of mutton breeds and when well cared for during the winter and after lambing. They may be expected to do well on the farms east of the corn belt and on the hilly pastures of the Appalachian Mountain system.

Use Care in Selecting Ewes.

In purchasing these ewes care should be taken to obtain those with sound teeth, udders that are soft and pliable, and teats that are sound and have no hard cores. Ewes from 1 to 3 years of age are to be preferred. These ewes may be in thin condition but should suffer no discrimination on this account alone. If thin they cost less per head than if fat, and the flesh needed to put them in good condition can be put on by the purchaser more cheaply than it can be bought in the open market.

Where Ewes Can Be Bought.

These ewes are usually free from stomach worms, and, thanks to the regulations governing the interstate shipment of sheep, are free from sheep scab or other communicable diseases. They can ordinarily be purchased through commission men on such central markets as Chicago, Omaha, Kansas City, East St. Louis, St. Paul, St. Joseph, etc., or direct from the range breeders. Organizations interested in effecting an increase in farm flocks have arranged to sell western ewes to eastern farmers at cost.

Regardless of how they are purchased, the buyer should insist that the stock be healthy, sound of teeth, and have good udders and teats.

Publications of Value in Sheep Raising.

Farmers' Bulletin No. 576, entitled Breeds of Sheep for the Farm, will assist the owner of grade ewes in the selection of a pure-bred ram to head the flock. This bulletin discusses the different breeds, their characteristics and adaptabilities. Advice on the different kinds of equipment to be used on the sheep farm can be obtained from Farmers' Bulletin No. 810, dealing with Equipment for Farm Sheep Raising. These bulletins can be procured free by writing to the Department of Agriculture, Washington, D. C.

FIRST WOOL FIGURES.

Quarterly Reports on Holdings of Foreign and Domestic Stocks Inaugurated.

For the first time in this or any other country a survey has been made of the wool stocks on hand, and the figures representing the holdings June 30, 1917, were made public by the Bureau of Markets of the United States Department of Agriculture on August 1. According to this summary there are 370,000,000 pounds of grease wool in the hands of dealers and manufacturers who reported, 47,000,000 pounds of scoured wool, 29,000,000 pounds of pulled wool, 23,000,000 pounds of top, and 18,000,000 pounds of noil. About 56 per cent of the grease wool, 62 per cent of the scoured wool, and 45 per cent of the pulled wool was reported by manufacturers, and the remainder by dealers.

Nearly Every Firm Responded.

An effort was made to obtain information from all dealers and manufacturers in the United States who had wool, tops, and noils on hand June 30, 1917. Approximately 2,200 blank forms were sent out and only 54 firms failed to return these schedules. About half of the total number, or 1,138, indicated that no stocks were held. Many of the latter reports, however, were from enterprises which, though listed in wool-trade directories, do not carry stocks of wool, and others whose stocks were included in reports received from central offices.

Six grades are reported, ranging from fine combing and clothing wools down to carpet wools, all the latter being of foreign origin. Even without these carpet wools, the stock of domestic wools now held is less than the foreign.

No Comparisons Made in First Report.

Since these are the first figures of the sort, the department says it does not feel justified in making any statement as to the relative size of the supply on hand. It is assumed, however, that the war is making unusual demands on the wool supply. Comparisons can be instituted when future reports are issued. The next survey will be made September 30, 1917. Each succeeding one will give a comparison as to all classes and grades of wool, tops, and noils, both foreign and domestic, held by dealers and manufacturers.

Detailed report may be secured on request to the Bureau of Markets.

FATTENING PIGS.

Finish Them With the Self-Feeder and Save Grain—Fat Must Be Put on Rapidly.

There is no advantage in skimping the pig when it comes time to fatten him, the United States Department of Agriculture points out. During the growing period of his life, pastures with little grain were in order, for scale and constitution were the main objects to be obtained. The last few weeks before butchering the idea is to lay on a good covering of fat, to increase the proportion of high-priced lard, and to add tenderness and palatability to the meat. A fat hog sells to much better advantage on the market for these very reasons.

To add this fat rapidly and most economically, we must feed an abundance of grain. The self-feeder is simply a device to keep before the pigs a constant supply of feed, in order that they may eat of such feeds in such quantities as they desire.

Results Obtained With a Self-feeder.

A brief résumé of results obtained by experiments with over 275 hogs, part of them self-fed and the balance hand fed in the best possible manner, shows:

First, that in comparison with the hand-fed pigs, the self-fed pigs ate grain 19 per cent more rapidly;

Second, that they gained weight 28 per cent more rapidly;

And last, that they consumed only 92 per cent as much grain in gaining 100 pounds.

This shows three very definite advantages in the use of the self-feeder. Pigs fed in this manner will eat more grain per day than under any other method of feeding. This maximum consumption is not wasteful of grain; in fact it saves grain, for an increase of 19 per cent in the rate of eating caused an increase of 28 per cent in the rate of gaining. The object in feeding is to put on fat as rapidly and with as little grain as possible. A method which will increase the rate of gaining 28 per cent and at the same time decrease by 8 per cent the grain required to produce a unit of gain is certainly worthy of consideration.

How to Use Self-Feeder.

Fill part of the self-feeder with corn or similar carbonaceous feed and the other part with protein supplement; also take care to see that it is kept filled. Induce well-grown shoats to eat when and what they choose, and save grain, save labor, and get your hogs to market at the earliest possible date.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., AUGUST 29, 1917. No. 4

SEED FOR RECORD CROP.

Sound, Clean, Healthy Grain Is First Requisite for Billion-Bushel Wheat Yield.

Sound, clean, healthy seed is the first requisite for the largely increased wheat crop which the United States Department of Agriculture hopes to see harvested next year. Whatever the source of supply, farmers will find it to their advantage, says the department, to see that only good seed is planted. What has been said is equally true of seed for the rye crop, which the department hopes to see much larger than usual next year.

If a farmer has seed from his own crop which is satisfactory so far as variety and general condition are concerned, he should lose no time in getting it into shape for storage until planting time. The fanning mill is the farmer's best friend in this task. The farmer, by all means, should have such a mill, and if he has not and is unable to obtain one, should borrow or rent his neighbor's mill, or several farmers can join in buying one. A fanning mill removes weed seeds, smut, and shriveled grain and leaves only plump kernels, practically every one of which may be depended upon to produce a thrifty plant. After it is cleaned, however, the seed should be treated in order that the smut may be prevented. Scab is less likely to be prevented by seed treatment, but the use of the fanning mill will assist materially in improving the crop grown from seed known to have contained scabby kernels.

If the farmer is dependent on outside sources for his seed, he should buy from his neighbor if possible so that he may be more likely to get seed well adapted to his conditions. It is advisable to buy as soon after harvest as possible, as at this time prices are likely to be lowest. If the farmer delays, his neighbors may dispose of all their surplus grain, and he may be forced to plant seed grown under conditions radically different from his own. If the farmer patronizes a seedsman, he should insist on getting seed grown as near his section as possible.

Treat Seed for Disease.

If seed is affected by diseases, careful inspection will usually disclose the fact. The presence of stinking smut in wheat is indicated by the odor, and the presence of scab by the appearance of the kernels. Purchased seed should, of course, be cleaned and treated for the destruction of the spores of disease-producing fungi if the examination shows this to be necessary.

In choosing varieties of wheat the farmer should be guided by the experiences of his neighbors and the advice of his State experiment station. This is true also of rye, but there are available fewer varieties of rye. The stations can furnish comparative statistics on the yields and behavior of a number of varieties of the two cereals.

After the grain farmer has procured a supply of satisfactory seed, he should store it carefully so that it will keep in good condition and will be safe from the depredations of rats, mice, and insects. Bins which are supposedly rat proof are available on practically all farms, and it will pay farmers to see that they are kept in good condition to keep out the rodents.

ARE YOU SAVING YOUR MONEY

TO INVEST

IN THE NEXT ISSUE

OF THE

LIBERTY LOAN?

LATEST STYLE IN WATERMELONS.

Don't refuse to buy a watermelon just because the stem looks as if it had been dabbed with a bluish starch paste, is the advice the United States Department of Agriculture is giving to housewives. Even if the melon is somewhat smeared with the same substance its contents are not affected. Painting the stems of watermelons with a paste made out of bluestone and starch is Uncle Sam's latest agricultural style. This treatment prevents stem-end rot of watermelons, which in the past has caused vast losses in this fruit in transit to market. The little dab of starch paste, or possibly of Bordeaux paste, therefore, is to be taken rather as evidence that the shipper wished to make sure that the melons reached market free from this rot. Some growers, in a hurry, smear some of the paste on the outside rind of the melon, but this does no damage beyond lessening its attractive appearance.

Remember that the question is not whether you personally may feel that you can afford to waste food; the point is that the Nation can not afford to have any food wasted by anybody.

BREAD NEEDS OF NATION.

Secretary Houston Emphasizes Importance of Increased Production of Wheat.

The first of a series of five regional conferences of agricultural leaders to consider steps to promote interest in the program for winter wheat and rye planting this fall was held in Washington, D. C., August 15. The conference was opened by Secretary of Agriculture D. F. Houston. In addition to some of the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and North Carolina were represented.

Secretary Houston addressed the conference as follows:

"This is the first of five conferences we have arranged to hold in the country in connection with the wheat problem. Conferences of this sort seem to be in this emergency especially essential. Last April we had a general conference in St. Louis. The impression I then formed has deepened, as time has passed, that this Nation is exceptionally fortunate in having laid, generations ago, the foundations for scientific and practical agriculture not only for the whole Nation in the Federal Department of Agriculture, but also for each State, in the land-grant college, in the State department of agriculture, and in the great farmers' organizations. Representatives of these agencies in St. Louis in two days came to conclusions the wisdom of which has not been generally or successfully questioned, the substantial part of which has now been enacted into law. Not only was there evolved then a program involving legislation, but a program involving organization and coordination of agencies for more effective assistance in this crisis. Such organization was quickly developed, and I imagine that in this direction, as in others, the Nation has given demonstrations of efficiency that no other nation has equaled. The response of all the agricultural agencies has been tremendously gratifying. The farmers have done their part with enthusiasm and patriotism and, for the most part, they were favored by nature. The result is, as you know, that in a number of important crops the Nation will have this year enormous yields.

"But, singularly enough, from a military standpoint we were unfortunate in respect to the very crop of which we have the most immediate and pressing need. Wheat bread

seems to be peculiarly the war bread, due to its own special characteristics as well as to the habits of European nations with whom we are associated in this war. It was not the farmers' fault that we did not have a large wheat crop. A large acreage was planted, but there was a tremendous winter-killing; and so we have the very short crop of last year followed by a short crop this year.

Increased Production of Wheat Essential.

"It is highly essential that we omit no step to secure a production of wheat during the next year which will be greatly in excess of the normal needs of this Nation. My own conviction is that, whether we have peace or war, this Nation is going to be called upon for some time to come to feed a considerable part of the population of Europe and to furnish it with agricultural supplies and equipment. A continent going through what Europe has gone through for the last three years, and is continuing to go through, does not quickly get on its feet. The waste of men, the loss of human life, the impairment of many of those who survive, the destruction of work animals, the waste of farm equipment, the impairment of labor, the disorganization of labor, the disruption of the normal processes of agriculture—all these things entail heavy burdens and handicaps; and it is going to take Europe a considerable period to get where she was before this war came on. There are doubtless some of you who know the condition of the South after the Civil War and recall that in agriculture even the South did not get on a normal basis until well in the eighties.

Price-Fixing Legislation.

"I speak of this because there may be doubts in the minds of farmers as to whether they will take too great risk in planting a large wheat acreage next year. I am no prophet. None of you perhaps would be willing to dogmatize, but I think we might agree that the economic conditions will be such as to assure wheat producers a normal and profitable return. We should bear in mind also that in the food control bill this compensation matter has been dealt with by the Congress. The intention of Congress is reasonably clear. It seems that it intended that the wheat grower should have a guaranty of at least $2 a bushel. But it is difficult to interpret section 14. It starts out very valiantly, leaving it to the President to determine whether there is an emergency which may require the stimulation of the production of wheat and authorizing him to take steps, in case he determines that there is such an emergency, to assure the farmers of a reasonable price—of a guaranteed minimum—and authorizing him to make rules and regulations. Then Congress inserted the statement 'that the guaranty shall not be dependent on the action of the President, but shall be absolute.' I do not know just what that means. It does not make it the duty of anybody to carry out this thought. It is not dependent on the action of the President. It does not say on whom it is dependent. Nor does it state what the price is, except that it shall not be less than $2. But, taking the language as a whole, it was clearly the intention of Congress that there should be for the 1918 crop a guaranteed price of not less than $2 a bushel. I am not prepared to speak for the food administrator, who is to deal with this section, and doubtless there will be forthcoming a clear statement of his conclusions at the proper time.

Consideration of Other Crops.

"It is important, as I have said, that we have an abundant supply of wheat to satisfy our own needs and a large part of the need of Europe from this time at least to the end of the next wheat season. But it is also very important that the suggestions made shall be wise, that we shall not interrupt our large agricultural enterprises in other directions, unduly unbalance our agriculture, or undertake to do things which are not desirable from a physical point of view, which are foreign to the habits of the people, and for which they do not possess the requisite facilities. So that our problem is not merely one of wheat production. It is of necessity in no very small sense a problem of the entire agriculture of the Nation. Doubtless this will be revealed fully as you proceed with the discussion.

Other Conferences Contemplated.

"It has been our thought that, after holding the wheat conferences, we should call conferences to consider live-stock problems and those of general farming for which we shall have more time for reflection.

"It is very gratifying to those of us who are trying to render service here to witness on every hand the most patriotic and fine spirit of service on the part of the people throughout the Nation. This is not a task that any one group of men, any set of Government officers, can do. Wars are no longer fought by a comparatively few groups of individuals. They are fought by entire nations and won by those nations with the largest resources most effectively organized and directed. I think this Nation is giving a demonstration, and will continue to give a superb demonstration, in the field of organization, in the direction of great resources and is going to teach the peoples of the world that democracy is really what we claim it to be—the best form of government.

The Opportunity to Serve.

"Leadership is as wide as the Nation. No man can say to-day from what quarter the suggestion may come that may most adequately solve a particular problem, whether it be a civic or a military problem. It is one of the tremendous advantages of democracy that any person, no matter how humble, may have the opportunity to serve the Nation. It is stimulating to know that this is so and it is encouraging to realize the prevalence of the spirit of service. I know that you have come here in this spirit of service, in the spirit in which hundreds of thousands of men are coming for different purposes from every corner of the Union. It would be presumptuous, almost impertinent, for me to thank you for coming here because you are simply gladly doing your duty."

PREVENT SMALL CORN YIELD.

To Plant Seed of Poor Quality Is Unnecessary and Unpatriotic.

Small yields from poor seed corn can be readily prevented by selecting seed corn this fall. To plant poor seed, says the United States Department of Agriculture, is unnecessary and unpatriotic. The cheapest and surest way to increase the yield of corn is to improve the quality of the seed.

Each spring finds a scarcity of good seed, so get enough for two years, says the department, which insists that the shortage need not exist, and is a much more serious source of crop loss than is generally realized. The loss is due to carelessness, neglect, or delay, but most of all to what the department characterizes as among the greatest of drawbacks to successful farming—procrastination. To get around this, the forehanded farmer will select his seed corn this fall as soon as it is ripe. Many thousands write to the Department of Agriculture each spring asking where seed can be bought and expressing their willingness to pay good prices and telling of their inability to get it at any price. The farmer with a good strain for his locality ought, therefore, to get a double supply, not only as an insurance against losses due to a wet, cold spring, or against the possibility of early frosts before the ripening of his next crop, but also to have some to sell to less fortunate or more improvident neighbors.

The best seed is available in abundance at ripening time, when it should be selected from stalks standing where they grew, because only then can seed be gathered with certainty from good yielding plants.

Sweet clover does best when seeded on a well-firmed seed bed which has only sufficient loose soil on the surface to cover the seed.

TREAT SEED FOR SMUT.

Treatment with Formaldehyde Solution Will Save Millions of Bushels of Wheat and Rye.

Now that, because of world shortage, every bushel of wheat and rye counts for more than ever before, the safeguarding of the next crops of these grains against disease by the treatment of seed before planting is of greatest importance, says the United States Department of Agriculture. Department specialists estimate that the average annual loss due to the smuts of wheat and rye amounts approximately to 27,500,000 bushels. This is equal to about 3½ per cent of the entire yearly wheat crop and is regarded as a conservative estimate, since only smutted heads actually lost are considered. The increased number of heads which healthy plants would have thrown out was not taken into account. The loss to the billion-bushel wheat crop the department hopes to see harvested next year would, at 3½ per cent, amount to 35,000,000 bushels. With wheat selling at $2 a bushel this would amount to an exceedingly high tax on the farmers of the country.

Treatment of Seed.

Treatment of wheat against stinking smut is fairly easy, not expensive, and fully 95 per cent effective. The efficiency of the treatment is, in fact, practically 100 per cent in most of the wheat-growing regions. The percentage of efficiency for the country as a whole, however, is reduced by the fact that in large regions in the Pacific Northwest the soil is polluted with smut germs to such an extent that the effects of seed treatment are negatived. Seed treatment costs not to exceed 5 cents an acre for materials and labor. To this cost, however, must be added the cost of grain the germinating power of which may be destroyed by the treatment. This amounts at the most to 20 per cent. In every case the value of the wheat saved by treatment would amount to several times the cost of treatment.

Statistics show that the average annual loss of rye from smut is about 1 per cent—considerably less than the loss of wheat. It is well worth while, however, to treat rye seed also.

Method of Treating Seed.

Several methods of treating seed for the destruction of smut spores are in use, but the best, it is believed, is the formaldehyde treatment. The grain should first be cleaned thoroughly with a fanning mill so that smut balls, shriveled grain, chaff, etc., will be removed. After the grain is clean it may be spread on a floor or a tarpaulin in a layer or pile several inches thick and sprinkled with a solution of formaldehyde made by mixing 1 pound of commercial formaldehyde with 45 gallons of water. An ordinary sprinkling can or a spraying machine is used and the grain is shoveled over and over until every kernel is wet. The grain is then placed in a pile and covered with sacks, blankets, or a tarpaulin for two hours or overnight. It is then dried sufficiently to be run through the drill, after which it may be sown. If the grain is not passed through a fanning mill, it should be placed in a vat or tank of the formaldehyde solution instead of being sprinkled. The smut balls will rise to the surface and may be skimmed off.

If the grain is not to be planted immediately, it must be dried sufficiently to prevent spoiling when placed in bins. If planted while damp and swollen, more grain by measure must be used to allow for the expansion.

WHY SEED TREATMENT PAYS.

Over 3 1/2 per cent of the wheat crop and 1 per cent of the rye crop is lost through smut.

Seed treatment with formaldehyde solution is practically 100 per cent efficient except in a few sections where the soil is badly polluted with smut spores.

The formaldehyde treatment costs less than 5 cents per acre for materials and labor. To this must be added in extreme cases the cost of 20 per cent of the seed grain, the germinating power of which may be destroyed because of seed injury.

In every case the entire cost of the treatment together with possible seed injury is much less than the value of the increased yield which it assures.

SELECT HEALTHY BEAN SEED.

Bean Growers Should at Once Take Steps to Secure Good Disease-Free Seed.

Every bean grower without delay should take steps to secure good seed for next year's planting, either from his own crop or from fields which he knows to be free from anthracnose and blight, the bean specialists of the United States Department of Agriculture advise. Seed from plants killed by frost before the pods are dry and mature should not be used.

The use of good seed—properly ripened, plump, intact, and free from disease—is essential for securing large yields. It is crop insurance for growers to lay in their seed while there is still opportunity to inspect the fields, or they can pick from the cream of commercial stocks instead of having to take whatever may be available later.

Seed from carefully selected, clean pods grown in one's own seed plat, of course, are safest. Once the beans have been threshed it is difficult to detect all which have come from diseased pods. It is possible, moreover, in the seed plat by planting the seed in hills and by spraying with Bordeaux mixture to protect the plants from anthracnose, even at an expense not warranted in larger plantings. The grower should see that no one moves among the seed plants while they are wet with rain or dew, when spores of the fungus causing anthracnose most readily are spread.

After the seed is threshed—and this is particularly important in the case of commercial seed—the grower should pick over his seed by hand two or three times and throw out all damaged or diseased beans and those not uniform in size and color. Even commercially hand-picked seed often contains many affected beans. While a few discolored beans are not objectionable for household use, every such seed when planted may spread disease to many neighboring plants. In purchasing beans for planting a germination test should be made and only seed of high quality accepted.

Where a seed plat is used the grower would do well to set aside and store separately with especial care the seed selected for next season's planting.

THE POTATO COMES BACK.

The huge potato crop which the Federal forecast indicates will be produced in the United States this year means that this important food staple will be cheaper, and makes it possible, says the United States Department of Agriculture, for American families that had to cut down on potato consumption because of high prices to restore the tuber to a prominent place on their bill of fare.

The department forecast, based on reliable estimates from all parts of the country, places the total potato yield at more than 467 million bushels as compared with 285 million in 1916 and 360 million in 1915. Potatoes of the current season are already in the market in large quantities and, since the early harvested tubers can not be kept easily, should be eaten more abundantly now if spoilage is to be avoided.

Next to the breadstuffs potatoes are the most important food crop of the western nations, the department points out. They are all the more important now that the world's wheat supply is short, since they furnish starch, the principal food element contributed by bread, and so may be substituted in part for bread.

It is no hardship to Americans, says the department, to eat freely of potatoes; rather, it has been a hardship to them during the past half year to forego somewhat the use of this common food.

Rats are great destroyers of chickens and eggs.

SEED BED FOR WHEAT.

Improperly Prepared Soil May Result in Poor Stand and Loss of Entire Investment.

"Make the seed bed fit for the seed. Do not 'intern' wheat worth $3 or $4 a bushel for seed purposes in a condition of soil impossible for germination."

That precaution is urged by the United States Department of Agriculture on all farmers who contemplate sowing the high-priced seed of a high-priced food this fall. To plant seed on poorly prepared land not only wastes the seed that does not germinate, the specialists point out, but it may mean the loss of an entire investment if a paying stand is not obtained.

Early Plowing Best.

A seed bed for wheat must be firm, moist, and well compacted beneath, with a mellow, finely divided upper 3 inches of soil, the specialists advise. If wheat is grown in rotation with oats or after wheat, the stubble should be plowed to a depth of at least 7 inches immediately after harvesting the preceding crop of grain. The ground should be harrowed within a few hours after plowing, and cultivation with harrow, disk, drag, or roller should be given as necessary thereafter until planting time. These operations are necessary to kill weeds, to settle and make firm the subsoil, and to maintain a soil mulch on the surface. The earlier the preparation of a seed bed for wheat is started the better the condition of the soil will be at planting time. Late plowing does not allow time for thorough preparation.

If a cultivated crop precedes wheat, frequent cultivation given to this crop will preserve moisture and maintain a soil mulch. If level cultivation has been practiced, a good seed bed easily can be prepared by disking and harrowing after removing the crop. However, if weeds are present, it may be advisable to plow shallow, the disk preceding and following the plow.

Advantages of Thorough Tillage.

Early plowing, followed by thorough tillage, aids in catching the water which falls and in conserving this and the water already in the soil for use by the wheat plants. The firm seed bed under the mulch thus made enables the young plants to make use of the subsoil waters which rise when there is a perfect union between the plowed soil and the subsoil. Sufficient moisture is thus assured for the germination of the seed and for the early fall growth of the seedlings, a very important consideration. Plant food is also likely to be more abundant in the soil when such methods are employed.

If the importance of thorough tillage were more generally recognized and proper methods of seed-bed preparation were more widely employed throughout the so-called humid areas, there would be less frequent losses from drought and better wheat crops would result, the department specialists declare. In this area the mistake is often made of thinking there will always be moisture enough present for a maximum crop growth, with the result that short crops often are obtained where more attention to moisture conservation would have assured good yields.

COMMON STORAGE OF APPLES.

Faulty Construction and Mismanagement of Houses Chief Cause of Losses by This Method, Say Specialists.

Apples keep for a reasonable time in good condition in common storage, provided the storage is carried on under favorable climatic conditions and skill and diligence are exercised in the construction and management of the storage house. A good house poorly managed will prove disappointing, while a poor house well managed may prove quite satisfactory. The man in charge is the most important factor for success or failure. The unsatisfactory results oftentimes experienced in this type of storage in the apple-growing sections of the Pacific Northwest are not due to the principle of air cooling or common storage, according to specialists of the United States Department of Agriculture who have just published a report of investigations on this subject. This publication, Farmers' Bulletin 852, "Management of Common Storage Houses for Apples in the Pacific Northwest," by H. J. Ramsey and S. J. Dennis, discusses the reasons for losses in common storage in the Northwest, describes the fundamental requirements of a good storage house, and points out how the houses already built can be utilized to the best advantage.

Where climatic conditions are favorable, apples can be held in common storage for long periods in almost as good condition as in cold storage, the specialists declare. When long storage periods are necessary cold storage has advantages over the common storage method. When common storage is employed to supplement cold-storage facilities, it should be the aim to move that part of the crop held in common storehouses earlier in the season. That apples have been held in good condition for several months in air-cooled storage houses in the Pacific Northwest shows that this method is entirely practicable in that region, say the specialists.

Whether or not apples will keep well in storage depends upon several factors—the inherent keeping quality of the variety, soil conditions and the cultivation of the trees, care in harvesting, the maturity of the fruit at the time of picking, promptness in cooling the apples, and the temperatures and humidity conditions of the storage houses. A common storage house must provide for a free intake and circulation of cold air during the night or cooler portions of the day. This cold air must be conserved by the prompt closing of outlets and intakes as soon as the outside temperature begins to rise and also by suitable insulation to prevent the leakage of heat through the walls, floors, and ceilings of the building.

Storage houses must not be used for packing during the harvesting season. Even when utilized only for storing it is oftentimes very difficult to effect the necessary cooling. The maintenance of satisfactory storage conditions in a house used for other purposes is out of the question. The storage room should be opened only for putting in or removing fruit or for ascertaining temperature conditions inside.

PLAN FOR SEED CORN NOW.

It Should Be Taken from Stalks Standing Where They Grew.

The acre yield of corn in the United States could and should be greatly increased, according to the United States Department of Agriculture, which states that the proper selection of seed is of primary importance in improving the yield. The average production for the country is 26 bushels an acre, though yields as high as 200 bushels have been made by contestants in boys' corn clubs.

Seed corn should be selected from stalks standing where they grew, according to the corn specialists of the department. This is necessary because it is the means of making sure that the seed will have the power to yield well, as shown by the superiority of the stalks over surrounding ones that grew under the same conditions. This sort of seed inherits high producing power.

It must be understood, says the department, that like produces like, and that an early-maturing corn yielding abundantly on short, thick stalks is likely to repeat these same characters in the next generation. For example, seed corn should be taken from stalks without suckers; such seed may produce some stalks with suckers, but it will invariably produce fewer suckers than seed from sucker-bearing stalks.

All seed corn should be selected by hand, as a special task, and not incidental to husking. The corn should be gathered as soon as thoroughly mature and before the first hard freeze. Enough should be gathered for two seasons' planting, to insure a supply of seed, if, for example, the first planting is drowned out, or if the next crop should be hurt by early frost.

FRUIT BUTTERS.

Use for Surplus Apples, Peaches, Plums, and Pears—Combinations with Other Fruits.

There will be more or less fruit on nearly every farm which will not be salable because of lack of a local market, lack of time to pick and pack for distant markets, or because the amount may seem too small at any one time to be worth saving. Such fruit should not be allowed to go to waste, for it may be used in making fruit butters. Well-made fruit butters are very welcome and "tasty," and homemade apple butter, peach butter, plum butter, pear butter, and other fruit butters go a long way to make plain cereals appetizing. Children, and older people, too, like such fruit butter on bread, and it is good dietetics as well as good economy to use such highly flavored products to "carry" a relatively large amount of milder flavored food. It is desirable to use only good quality fruit for fruit butters, and it must be remembered that poor fruits will not make good fruit butters. However, as every housekeeper knows, part of an apple or other fruit may be sound and good, while the remainder is not, owing to bruising or other injury, and such good portions may be used successfully for fruit-butter making. Thus it is often a decided economy, since it saves what would otherwise be a total loss.

Apple Butter.

There is no better way to use good apples and the sound portions of windfall, wormy, and bruised apples than to make apple butter of them. While almost all varieties of apples will make good apple butter, those with distinctive flavor and good cooking quality are most satisfactory. Such old standard varieties as Northern Spy, Rhode Island Greening, Tompkins King, and Smokehouse are excellent for this purpose. The summer varieties also will make good apple butter, it has been found by recent tests in the United States Department of Agriculture.

If apples of coarse texture are used, it is desirable to cook them and put them through a colander or coarse wire strainer before adding them to the boiled cider. Sweet apples are sometimes used with tart ones. Overripe apples are not desirable.

Apple butter is made by boiling down fresh, sweet cider to half its original quantity, then adding apples which have been peeled and sliced. The apples either are added directly to the boiled cider and cooked in it until the apple butter is done, or are made into apple sauce which is cooked in the boiled cider. The cooking should be continued until the cider and apple pulp do not separate; then the butter will be of the right thickness when cold.

It takes usually about equal amounts of sweet cider and peeled and sliced apples to make butter of the right consistency. In other words, if 5 gallons of sweet cider are used, it should be boiled down to 2½ gallons, and 5 gallons of peeled and sliced apples should be added, either raw or made into apple sauce.

Two things essential to making good apple butter are: Long, slow cooking (four to six hours), and constant stirring.

If sugar is used it should be added after the cooking of cider and apples is about two-thirds done. About a pound of either white or brown sugar is the usual amount per gallon of apple butter, but more or less, or not any, may be used to suit the taste.

Apple butter is spiced according to one's preference, about half a teaspoonful each of ground cinnamon, cloves, and allspice for each gallon being a common mixture. These are stirred into it when the cooking is finished.

While still boiling hot, apple butter should be packed in hot sterilized glasses, glass jars, or hermetically sealed stone jars, or crocks with tightly fitting covers, and be sterilized in steam as follows: Set the containers, filled and with tops on, in a vessel fitted with false bottom and deep enough to hold them, pour in a little water, put on the cover to hold in the steam and set over the fire. Begin to count time when the steam starts to escape, and after 5 minutes (10 minutes for half gallon, or 15 for larger containers) take the containers out to cool, then set them away for future use. Do not disturb the covers until the apple butter is to be used. If the covers do not fit tightly place waxed or oiled paper in them to make a tight fit before sterilizing is done. This sterilizing is done for the purpose of preventing any spoiling of the top layers of apple butter and also to take the place of a layer of paraffin which, though a good seal, is now quite expensive. All fruit butters and similar products should be sterilized in the same way.

Apple Butter Without Cider.

Good apple butter is often made without the use of cider. Enough water is added to the peeled and sliced apples to make a thin apple sauce and this is allowed to cook very slowly, or simmer, over a low fire for 3 or 4 hours. Brown rather than white sugar is usually used, being added when the cooking is two-thirds done. The sugar which settles at the bottom of barrels of New Orleans molasses is excellent for this purpose. A pound per gallon is usually sufficient but this amount is a matter of taste as is also the amount of cinnamon, allspice, and cloves to be added when the cooking is done.

Pear Butter.

Pear, plum, and peach butters are made without cider. The pears should be ripe enough to cook up well and after being peeled, cored, and sliced, are put into a preserving kettle with a little water and cooked slowly until soft. The sugar is then added, one cup to one quart of sliced pears, and cooking is continued very slowly, with frequent stirring, for 1½ to 2 hours. The butter should then be smooth and as thick as thick apple sauce. A little lemon juice and ginger and cinnamon or other spices to taste, should be well stirred into the hot butter. Pack while hot in hot, sterilized containers and sterilize in steam as mentioned for apple butter.

Plum Butter.

Wash the plums and place them in a preserving kettle with water enough barely to cover, and cook until soft. Then put them through a colander or coarse wire sieve to remove the seeds and skins, and to each measure of pulp add three-fourths measure of sugar and cook slowly with frequent stirring until the butter is as thick as desired. This amount of sugar makes a fairly sweet product, and if a more tart butter is desired the amount of sugar should be reduced. Cinnamon, allspice, and cloves may be added according to taste. Plum butter should be packed hot in sterilized jars or glasses and then be sterilized like apple butter.

Peach Butter.

Put the peaches in a wire basket and dip in boiling water a few seconds until the skin slips—test by raising peaches out of water and rubbing the skin with fingers—then dip into cold water and peel and pit the fruit. Well-ripened freestone varieties are best. Mash the pulp and cook in its own juice without adding water. If it is rather coarse put it through a colander or coarse wire sieve to make a butter of fine texture. To each measure of pulp add one-half measure of sugar and cook slowly and stir frequently until the product is of the desired thickness. The meats of several pits may be cooked either whole or sliced in each gallon of butter. While still hot pack in sterilized jars or glasses with tight-fitting tops and sterilize like apple butter, or cover with hot paraffin.

Apricot Butter.

Apricot butter may be made in the same way as peach butter.

Garfield (Peach-Plum) Butter.

This is made of two-thirds plums and one-third peaches. Pare, pit, and slice the peaches, and if the plums are freestones, remove the pits. Cook the peaches and plums together slowly until soft, and rub through a colander or coarse sieve. If the plums are clingstones, boil them with the sliced peaches until soft and rub the pulp through a colander or sieve. To each measure of pulp add three-fourths measure of sugar, cook slowly

and stir often until of the right thickness. Pack hot and sterilize like peach butter.

Combination Fruit Butters.

Apple butter with grape juice.—If a grape flavor is desired in apple butter it may be obtained by the use of grape juice. To each gallon of peeled and sliced apples cooked into sauce and strained, there should be added 1 pint of grape juice, 1 cup of brown sugar, and one-quarter teaspoon of salt. These should be cooked slowly and stirred often for two hours or until of the desired thickness; then stir in 1 teaspoon of cinnamon and pack hot into hot containers and sterilize as for other apple butter.

Apple butter with lemons.—Slice 4 lemons, cover with water, and let stand over night. Next morning put them into a preserving kettle and add 8 pounds of apples, pared, cored, and sliced. Cook for one hour, add 3 pounds of sugar, and cook slowly with frequent stirring 1½ hours longer, or until of proper thickness. Pack hot in sterilized containers and sterilize like apple butter, or cover with paraffin.

Peach butter with lemon juice.—Pare, pit, and slice 15 pounds of peaches, put into a preserving kettle, and bring slowly to a boil in their own juice. Cook 45 minutes and add 5 pounds of sugar. Cook 15 minutes longer, add the juice of 1 lemon, and boil 1 minute longer. Boil slowly and stir often. Pack while hot and sterilize like peach butter.

Peach butter made with dried and canned peaches.—When ripe peaches are not available, peach butter can be made from dried and canned fruits. To each pounds of dried peaches use 2 quarts of canned peaches. Soak the dried peaches in water several hours and cook until tender. Add the canned peaches and rub pulp through a colander or wire sieve. Stir 2½ pounds of sugar into this pulp and cook slowly, stirring often, for 2 hours or until of right thickness. Pack while hot and sterilize like peach butter.

CANNING IN HIGH ALTITUDES.

Home canners in Northern and Western States who live in altitudes more than 1,000 feet above sea level are cautioned to increase the period of cooking (processing, sterilizing) their filled containers over that recommended for ordinary localities. Farmers' Bulletin 839, "Home Canning by the One-Period Cold-Pack Method," advises: "For altitudes above 1,000 feet the time should be increased at the rate of 10 per cent for each 500 feet." This caution must not be disregarded by canners in mountainous sections.

Both Irish and sweet potatoes are valuable sources of body fuel, on account of the large percentage of starch which they contain.

SIX REPORTS ISSUED.

Addition of Wool Supply Record Adds New Set to Schedules Furnished by Government.

With the addition of the quarterly reports on wool supply just issued for the first time, the Bureau of Markets now furnishes six series of periodical market reports which are sent free to all persons who show a need for them. Telegraphic reports are sent collect on request.

The six series include fruits and vegetables, meats, honey, wool, grain and hay, and cold-storage holdings. Each one of these is further subdivided, and there are 18 classifications under cold-storage holdings, including apples, eggs, cheese, butter, beef, pork, lard, mutton, and poultry.

The periodicity of the reports varies with the market needs. Those on perishable fruits and vegetables, and on meat trade conditions, for example, are issued daily; other market records are reviewed weekly; the movements and prices of honey and of grain and hay are semimonthly; cold-storage holdings are shown in monthly reports, and the supply of wool is given quarterly.

The Purpose of Reports.

The purpose of these reports, according to the United States Department of Agriculture, is to acquaint the public with actual market conditions and to promote equable distribution of products. They are especially intended to show the producer and the consumer the actual facts of supply and demand. From these facts the producer may send his goods to the markets which show the best chances for sales of his special commodity, so that it will not go on a glutted market. The consumer, for his part, can find the relative supplies of the things he may wish to buy, and can tell, in a general way, whether the price asked of him is justified. In the long run it is assumed that prices will tend to become more equable and that both the producer and consumer will benefit by this. It is said that the equalizing and stabilizing of markets and prices is somewhat equivalent to the equalizing of stream flow for water-power purposes. Extremes of high and low water mean waste at flood times and an insufficient quantity at low water, whereas the same quantity of water, provided it passes over the wheels in a steady stream at all times, gives sustained power. An evenly sustained market, according to the marketing authorities, gives the greatest encouragement for production, and in the long run the greatest buying power for his money to the consumer.

The reports are received by wire and are sent out from various market stations, chosen in reference to their importance in special market fields. The original data come from points of production, and the results are assembled and then distributed by mail or wire. Much of the information is disseminated through the cooperation of the press, particularly in the trade and technical journals. Without this cooperation, the department says, the value of the reports to the public would be much curtailed, although anyone who will pay the tolls can receive telegraphic service. A free mail service is available to all who show a need for it, and requests for either kind should be sent to the Bureau of Markets, United States Department of Agriculture, at Washington.

HOW TO GATHER SEED CORN.

It Should Be a Special Task, Preceding and Not Incidental to Husking.

At corn-ripening time, drop all other farm business, says the United States Department of Agriculture, and select twice as much seed corn as you think you will need. The job is too important to be conducted incidentally while husking, and demands the entire attention of the farmer when the time is ripe—likewise the corn.

Get the very best to be had and preserve it well, because then, say the corn experts, increased yields will return more profit than from any other work that can be done on the farm. The one and only proper way to select seed corn is from the stalks standing where they grow, as soon as ripe and before the first hard freeze.

As soon as the crop ripens the wise farmer will go through the field with seed-picking bags, and husk the ears from the stalks that have produced the most corn without having any special advantages such as space, moisture, or fertility. He will pass by the large ears on stalks standing alone with an unusual amount of space around them. Strains that do well in competition for light, and moisture, and soil fertility are likely to repeat under the same conditions. The most important consideration is to select seed from those plants which have the ingrained ability to furnish the largest quantity of dry shelled corn.

Early maturity is a desirable quality, and so are short, thick, wind-firm stalks; top-heavy ones with ears borne too high are likely to mean losses. Breeding experiments have proved that the tendency to produce suckers is hereditary in corn. Other things being equal, take the seed from suckerless stalks.

Rats destroy grain when newly planted, while it is growing, in shocks, stacks, mow, crib, granary, elevator, car, or ship.

BOLL-WEEVIL CONTROL.

Early Picking and Destruction of Cotton Plants Will Insure Crop Next Year, Entomologist Says.

"Push cotton picking to early completion and then destroy the cotton plants before the boll weevils hibernate."

If every cotton grower whose fields are infested with weevils would carry out that suggestion of an entomologist in the United States Department of Agriculture the 1918 American cotton crop would get a substantial boost this fall. For fall destruction of weevils now is considered the all-important measure in boll-weevil control.

Hand in hand with early fall destruction of weevils goes the practice of planting cover crops after the stalks have been removed. Such crops not only improve the soil but furnish feed of a kind southern farmers now need. Thus the proper step to take in controlling the boll weevil will increase the production of forage and assist greatly in the production of meat. In a recent publication of the Department of Agriculture, Farmers' Bulletin 848, The Boll Weevil Problem, the department says so emphatically.

"Weevils are at the mercy of the planter in the fall as they are at no other time," declares Dr. W. D. Hunter, the writer of this bulletin. "If the farmer desires to kill these insects then, he can do so. If it is not practicable to burn the stalks, they can still be uprooted, thereby destroying the green-food supply of the weevils and preventing the further increase of the insects. The cotton then can be picked as the supply of labor permits. *Fall destruction of weevils insures a crop for the following season.*"

This measure of control, it is pointed out by the entomologist, can not be applied alike to all infested regions. It is of the greatest importance in localities of the extreme South, where the boll-weevil problem is most serious. Farther north the colder winters make this step less important. As the practicability of fall destruction depends upon the supply of labor available and upon the size of the plantings, it is a measure particularly applicable to the southern and southeastern parts of the cotton belt, where the cotton fields are small and labor is sufficiently plentiful to perform the work in ample time.

Extermination of boll weevils in the fall has not been adopted as widely as it should be, the department entomologist reports, but individual instances everywhere show its value. In one of many experiments performed by the Bureau of Entomology—this one in Calhoun County, Tex.—the stalks growing on 410 acres of land were destroyed early in October. Careful records kept during the fall each season showed that this work had increased the production more than one-fourth of a bale per acre over the crop on a check area near by where such work was not done. Circumstances surrounding the experiments show that the advantage was probably considerably greater than indicated by the estimated increased yield, which is very conservative.

No definite rule can be laid down as to the proper time for destroying weevils in this way. In general, the proper time is whenever the weevils have reached such numbers as to infest practically all of the squares that are being set. This may occur much earlier in some seasons than in others. Fall destruction as late as November will accomplish much, but several times the number of weevils can be destroyed if the work is done in October. The rule should be to destroy infested plants at the earliest possible date in the fall. It is much better to sacrifice a small quantity of cotton than to defer the operation. The loss will more than be made good by an increase in the next crop.

In regions where the loss of organic matter from the burning of stalks is important, it is advisable, the specialist says, to cut the stalks by means of the machine usually employed for that purpose and bury them deeply as soon as possible. This will cause the destruction of many of the immature stages of the weevil in the squares and bolls. Other fall measures against the weevils include plowing under infested squares, grazing cotton fields with cattle, sheep, or goats, and preventing the growth of volunteer cotton or sprouts from the old stumps.

Five Reasons for Fall Destruction of Cotton Plants.

1. Hordes of adult weevils, many for each plant in the field, are killed outright.
2. Many more weevils that are in the immature stages, sometimes as many as a hundred for each plant in the field, are also killed.
3. The few adult weevils escaping will be weakened by starvation, and the great majority will not have sufficient strength to pass through the winter.
4. The development of the late broods, which experiments have shown furnish the vast majority of weevils that pass through the winter, is cut off immediately. In this way hundreds of weevils that would develop from each plant are absolutely prevented from so doing.
5. The removal of the infested plants with the weevils facilitates fall or early winter plowing, which is the best possible procedure in cotton raising. Moreover, this plowing assists greatly in the production of an early crop the following season.

Spraying has not proved successful against chinch bugs, except on a small scale.

POISON POCKET GOPHER.

Simple Directions for Destroying These Destructive Pests — May Also Be Trapped.

A successful method of poisoning pocket gophers is recommended by the United States Department of Agriculture as part of its campaign against destructive rodents. In California especial effort is being made at this time to prevent waste, and a systematic campaign is under way against ground squirrels, both as destroyers of crops and forage and as possible agents in the spread of bubonic plague. Several drives have helped to keep the jack rabbits also in check. In Nebraska, Kansas, and many other Western States the pocket gopher has been causing a great deal of damage.

Pocket gophers can be caught in traps without much trouble, and a few gopher traps will keep small areas free from the pests. For ridding alfalfa fields, orchards, and long stretches of irrigation ditch banks of them, the Bureau of Biological Survey recommends poisoning as practical and successful. The poison baits are made of small cubes of sweet potato or parsnip placed in the gopher runways.

Preparing the Baits.

The baits should be cut into small rectangular pieces about one-half inch square by 1 inch long. The poison is prepared by grinding together in a mortar powdered strychnin (alkaloid) with one-tenth of its quantity of saccharin. For each 4 quarts of bait use one-eighth ounce of strychnin. This should be shaken slowly from a pepper box or other receptacle with a sifting top, onto the dampened baits, after they have been washed and drained, stirring the baits to evenly distribute the poison. This bait is put in the gopher runways, which are from 4 to 8 inches below the ground surface.

Locating the Runways.

The runways are found with the aid of a probe made of an iron-tipped staff or handle, about an inch in diameter and 3 feet long. A stout broomstick serves admirably.

The iron tip is made of three-eighths-inch round stuff about a foot long and somewhat pointed at the end. A crosspiece, or foot rest, will aid in forcing the rod into hard soils. As the rod goes into a gopher tunnel its presence is known by the way the iron breaks through. The hole is then enlarged by using the somewhat pointed wooden end of the probe, a bait or two is dropped in, and the probe hole is closed.

With practice one man can find and treat from 300 to 500 gopher workings in a day, because baits need to be placed at only two points in each system of from 10 to 30 mounds

which constitute the home of a single gopher. Since the baits are invariably effective the method has found favor wherever tried.

The department cautions strongly against leaving any containers and utensils where children, irresponsible persons, or live stock can get at them. Plainly label as such all poison containers.

FARMERS NOT HOLDING CORN.

Small Stocks Due to Shortage in 1916 Production, Increased Exports, and Increased Demands for Feeding Purposes.

That the unprecedentedly high price of corn is not due to abnormal holding of supplies by farmers is the belief of the United States Department of Agriculture, based on reports just received from crop correspondents in Illinois, Ohio, Kentucky, Iowa, and Missouri. These States are typical of the great surplus white-corn producing region of the United States, the department declares, and their conditions indicate conditions throughout the corn-producing area. The investigations disclosed that farmers are holding only enough corn to insure their seed supply for next spring and to protect their live-stock feeding interests until the production of a sufficient supply from the present crop is assured; and that the stocks in their hands are much lower than normally.

Among the conditions making for high corn prices, according to the Department of Agriculture, are shortage of the 1916 crop and the carry-over from 1915, increased exports, increase in the general level of prices, and the increased numbers of live stock on farms. The 1916 corn crop, it is pointed out, was 400,000,000 bushels short of the 1915 crop, and stocks on farms on March 1, 1917, were 300,000,000 bushels short of the stocks on farms on the same date the preceding year. The exports of corn in the year ended June 30, 1917, were approximately 70 per cent greater than in the preceding year and about seven times greater than in the year ended June 30, 1914, the year preceding the war. The general level of prices, it is pointed out, has increased greatly during the last year, especially as regards foodstuffs. Live stock in the United States has increased about 3,000,000 head in the past three years, statistics of the department show, and so has helped to increase the demand for corn for feeding purposes.

With short corn stocks, the department specialists point out, the highest corn prices are naturally being reached just before the maturity of the new crop, when the shortage is most marked. The department's reports point to the harvesting of a large crop of corn this year provided climatic conditions are favorable during the remainder of the season.

USE GARDEN WASTES AS FEED.

If persons who have gardens will see that the unavoidable wastes are converted into fodder, a great saving will be effected, according to those engaged in the work of bringing about food economies.

Persons having gardens might well arrange with farmers, and particularly with dairy farmers, and those raising chickens and pigs, to see that full use is made of green stuff remaining from garden crops. This fodder would include pea and bean vines, cornstalks, lettuce that has gone to seed, turnip tops, lawn cuttings, and other plant materials which have served their usefulness to man but have still considerable value as food for other animals.

The city or suburban gardener often has difficulty in disposing of this waste. It might be composted to advantage, but there is always the danger, in composting old plants from the garden, that plant diseases and insects will be kept over from year to year. The farmer will usually be glad to get this feed for his animals at no cost except that of hauling it away. Truck farms should yield a considerable quantity of good feed formerly lost or burned up.

The food conservation forces are joining with the Federal Department of Agriculture in urging State and county food supply commissions, local committees of defense, farmers' organizations, county agents, and others to help bring about a saving of these garden wastes.

SHORE-BIRD SEASON.

Unlawful to Hunt Certain Species at Any Time—Open-Season Dates.

Reports and inquiries received by the United States Department of Agriculture indicate that sportsmen of certain States are somewhat confused in regard to the time when the shore-bird season opens under the migratory-bird regulations.

The department has announced that it is unlawful to hunt at any time any shore birds except the blackbreasted and golden plover, the greater and lesser yellowlegs, Wilson snipe, and woodcock, the open seasons for which are as follows:

Blackbreasted and golden plover, greater and lesser yellowlegs.—In Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, and Virginia the open season is from August 16 to November 30, inclusive; in Wisconsin, Minnesota, North Dakota, South Dakota, Wyoming, Montana, and Idaho the open season is from September 7 to December 20, inclusive; in Oregon and Washington the open season is from October 1 to December 15, inclusive; in South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas the open season is from November 1 to January 31, inclusive; in California and Utah there is no open season; and in the remainder of the States the open season is from September 1 to December 15, inclusive.

The open season for shooting Wilson snipe or jacksnipe are the same as the open seasons for shooting waterfowl under the regulations.

The open season on woodcock in zone No. 1 is from October 1 to November 30, inclusive, except in Illinois, Kentucky, and Missouri, where the season is closed until October 1, 1918; in zone No. 2 the open season on woodcock is from November 1 to December 31, inclusive.

Persons desiring further information in regard to the open seasons may communicate with the Bureau of Biological Survey, United States Department of Agriculture, Washington, D. C.

In this connection, the department has announced that the migratory-bird regulations are not to be construed to authorize the hunting or killing of migratory birds at a time when it is unlawful to kill them under State laws.

THE VALUE OF POTATOES.

"There is no food which exactly takes the place of the potato when one is accustomed to it," says a statement issued by the United States Department of Agriculture, urging an increased consumption of this vegetable now that the markets of the country are well supplied. "It has come to be such a part of our dinner that we miss it when it is not served. Besides, any left-over potato can be used in many very palatable ways for breakfast or supper, and this is a convenience from the housekeeper's standpoint, since it helps her to make palatable meals. Not only is it useful from the ease with which it can be prepared and the number of palatable ways in which it can be served, but it is very important for the food material it supplies. It is one of the most wholesome sources of starch and is also fairly rich in the mineral matter which the body needs. Of the mineral salts one must not overlook the importance of the mild alkaline salts it contains, because these are greatly needed by the body to counterbalance the acid salts which meats and eggs produce when assimilated. In this we have a justification of the use of potatoes in the diet in liberal quantities and of our common custom of serving them with meats. When the price permits, potatoes should, by all means, be made a part of the diet."

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., SEPTEMBER 5, 1917. No. 5

LOOKING FORWARD IN FARMING.

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing, and Preparation the Next Few Weeks.

NORTH AND WEST.

Wheat Situation.

The emergency food bill has been passed by Congress and is expected to have a satisfactory effect in stabilizing wheat prices. An attractive farm price for good wheat seems assured, and with this assurance farmers will be more justified than ever in giving attention to securing recleaned seed and planting it in a well-prepared seed bed. Remember to plant late enough to avoid the Hessian fly, consulting the extension director at the State college of agriculture for dates.

Rye.

Attention is called to the national plan for an average increase of 22 per cent in rye acreage over the acreage planted in the fall of 1916. Use rye on fields where wheat is especially subject to winter killing and also on soils so poor that only a small yield of wheat could be secured. Rye can be successfully planted later than wheat, so it may be used on fields where conditions have delayed wheat planting.

Corn.

Consult county agents on how to select seed corn and for proper methods of procuring storage. For a bumper corn crop next year seed should be selected from the most thrifty stalks in the field. After selection proper attention to curing and storing for the winter has much to do with germination next year. Plan to have a dry airy place for seed corn to cure. If it is necessary to build a place for seed curing and storage see the county agent or write the State extension director at once for plan best adapted to your State. Thousands of dollars will be saved if proper attention is given to seed selection, curing, and storage.

Potatoes.

There appears to be some uneasiness on the part of potato growers on account of the prospective large crop of potatoes and the disappointing prices now quoted. In some

(*Continued on page 6.*)

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MARKETING.

Cotton Ginning.

Cotton remaining in the field after maturity or exposed to the weather after picking, is likely to become discolored and to lose value. Under no circumstances should seed cotton be ginned unless thoroughly dry, and the farmer should insist that the ginner use every caution to see that his bale is not gin-cut or mixed with cotton from the preceding load.

It is important for the farmer to know the class of his cotton before selling. Investigations made in North Carolina last year indicated that farmers who knew the class of their cotton obtained $1.15 per bale more than those who did not. Where the conditions are favorable the organization of cooperative cotton marketing associations should be considered. The benefits to be obtained include: The development and maintenance of a pure variety of cotton of a given length of staple; uniform and better ginning; proper storing; and when ready for sale better prices can be secured by assembling samples at a central point, having them properly classed, and offering for sale in even-running lots of grades and staples.

Cotton Storage.

At prevailing prices cotton saved from weather or other damage will well repay any trouble and expense involved this season.

(*Continued on page 7.*)

"Shall we be more tender with our dollars than with the lives of our sons?"

W. G. McADOO,
Secretary of the Treasury.

SAVE YOUR MONEY TO BUY A U. S. GOVERNMENT BOND

OF THE

SECOND LIBERTY LOAN OF 1917

TO HELP YOUR COUNTRY AND YOURSELF.

IN THE SOUTH.

Wheat and Rye.

The Federal Department of Agriculture and the State agricultural colleges and other agricultural forces are now carrying on a campaign for an increased acreage of wheat and rye in the Southern States, as well as in other sections. The increases asked in the South are as follows:

	Per cent.
Maryland	10
Virginia	15
West Virginia	12
North Carolina	12
South Carolina	37
Georgia	100
Kentucky	13
Tennessee	20
Alabama	50
Mississippi	455
Texas	8
Oklahoma	25
Arkansas	37

The increases in rye asked in the South by the Federal Government are:

	Per cent.
Maryland	21
Virginia	15
West Virginia	22
North Carolina	A reduction of 22 per cent.
South Carolina	614
Georgia	488
Kentucky	No increase.
Tennessee	61
Alabama	100
Texas	No increase.
Oklahoma	50

In planting wheat in the South two or three matters should have especial consideration:

First. The kind of land and the preparation of the soil for planting. The chief increases should be made where wheat production is known to be reasonably certain. The supply of wheat seed is so limited that this precious grain should not be planted on either poor soil or soil not adapted to wheat growing. Soil suitable for wheat should be prepared as soon as possible by thorough plowing and harrowing to make a mellow, yet firm, seed bed. County agents will be glad to help those not familiar with wheat raising.

Second. The agricultural colleges or the county agents will advise as to the kind of seed adapted for local soils and climate. Seed containing noxious weed seed should be avoided. Northern grown or spring wheat seed should not be used as it may waste both time and money. Good seed adapted to soil and climate is necessary to insure a return.

Third. Proper machinery to handle the crop should be provided so that it will not be wasted. A good seeder is advisable so that wheat may be drilled in open furrow drills so as to stand the winter. Harvesting machinery and threshing machinery are necessary. If you or your neighbors have these, go ahead. Farm machinery is scarce, and you may not be able to purchase.

Fourth. Those who have seed wheat for sale should not hold it for an exorbitant price. Seed wheat is worth more than wheat for milling, but the country needs wheat in the ground to grow another crop, and a fair profit is all any one should ask.

Sweet Potatoes.

In many sections, there is a great increase in the sweet potato production. The entire crop will be needed for food. Its safe storage is a necessary step. If the acreage is large in your territory a plan for a community storehouse can be worked up by your county agent and a specialist can be secured to help the farmers plan to put one in. The plans will be free of cost. Neglect to provide storage may waste from one-quarter to one-third of the sweet potato crop.

Corn.

Corn for the next year should be selected and carefully stored where it will not be injured by rats, mice, weevils, or dampness. Wait until the corn in the field is fully matured. Then go into the field and select seed corn under instructions of the county agent, who will be glad to help.

When the corn is ready to harvest this fall, special pains to store it properly, awaiting market, should be taken. New corn should not be thrown into the bin or crib on top of old corn which is full of weevils. Store early corn, which is most susceptible to weevil damage, separately from late corn which shows no weevil infestation. Wherever possible, all corn should be stored in bins or cribs where it may be treated with carbon bisulphid to protect it from weevils.

The States of Kentucky, Tennessee, Mississippi, Alabama, Georgia, South Carolina, North Carolina, and Virginia are going to have large corn crops. The marketing facilities are going to be taxed to their utmost. Unless this important matter is looked after by States, counties, and communities, great waste will result and great loss to the farmer's as well as needless shipping of corn to northern markets and its return to sections of the South where the supply is not sufficient. Now is the time to organize the proper marketing of corn. Every farmer who will have corn for sale should look out for shelling facilities, provide clean sacks, and endeavor to get in touch with some warehouse, elevator, or local or county organization prepared to handle his corn at a fair price and market it in the South if possible.

Hay.

As a great deal of hay in the South stands outdoors in the stack a large part of the year, and as this is an important feed crop to carry our live stock through the winter, hay stacked in the open should be examined from time to time to see that the stacks are secure, that the water is shed properly and is not running in, and that settling has not threatened either the contour or the security of the stack.

Fall Pasturage for Live Stock.

Grain for making bread for human use is the most important thing for the human race. Wheat, corn, rye, rice, and other grains have great importance as human food. Nevertheless, we must produce meat, and especially must we preserve the breeding stock, for the United States may be the most important source of both meat and breeding stock in the world after the war.

The cheapest feed for live stock is pasture. Do not neglect the fall seeding of rape and small grains for feeding of hogs and cattle. A small quantity of rape seed will produce abundant pasture for hogs.

Oats, where the seed can be obtained, should be put in for both cattle and hogs.

Grass pastures should be looked after and treated as an important crop on the farm.

Alfalfa is one of the few fall seeded legumes the seed of which can be obtained. While the crop seeded this fall would not be ready for pasture this year, farmers with plenty of live stock should give this crop careful consideration if their soil is adapted to it.

MAY EXHIBIT FREE CATTLE.

Shipping of Cattle to and from Tick Quarantine Area for Exhibition at Fairs Permitted.

The Bureau of Animal Industry, United States Department of Agriculture, in Order No. 252, dated August 13, permits cattle to be shipped, under certain safeguards, from free areas for exhibition at southern fairs inside the quarantined area, and returned to free territory without dipping. The requirements, which are framed to protect free cattle from the tick throughout their journey to and from the fairs, will be supplied free to any prospective exhibitor on request to the bureau at Washington, D. C.

The fairs at which exhibition under these conditions was made possible are: Central West Texas Fair Association, Abilene, Tex.; The State Fair of Texas, Dallas, Tex.; Chattahoochee Valley Fair, Columbus, Ga.; The Gulf Coast Fair, Mobile, Ala.; Southeast Alabama Fair Association, Dothan, Ala.; Louisiana State Fair, Shreveport, La.; Georgia State Fair, Macon, Ga.; Texas Cotton Palace, Waco, Tex.; National Farm and Live Stock Show, New Orleans, La.; National Feeders and Breeders' Show, Fort Worth, Tex.

PROTECT HORSES FROM HEAT.

Reports of many horses that have dropped from the heat recently have led the Bureau of Animal Industry of the Department of Agriculture to issue the following instructions for caring for the work horses in summer:

Do not overload animals, and drive them slowly, especially in the sun.

Put wet sponges or light sunshades on their heads or sponge the heads frequently with cold water while they are working. Water horses frequently while at work and allow them to drink as much as they want. Keep stables cool and well ventilated. Feed and use with especial care animals weakened by unusual work or by sickness.

Treatment for Heated Horses.

Do not bleed horses that have fallen from sunstroke or heat exhaustion. Apply ice or very cold water to the head and spine. Give half an ounce of carbonate of ammonia in 1 pint of water as soon as the animal is able to swallow freely. Repeat the dose in one hour if the pulse has not become slower. Showering the horse with cold water from a hose is good treatment and should be repeated until the body temperature is reduced to 103° F. It helps in some cases to rub the limbs of the horse briskly with wisps of hay or straw. After the horse has again become able to eat readily, give the following dose of tonic in his feed for a few days each morning and evening:

Sulphate of iron, one dram; gentian three drams; red cinchona bark, two drams, mixed in his feed.

For late pastures for the brood sow and litter, wheat and rye should be seeded in August and may be pastured until growth is checked, without injury to the spring growth.

Alfalfa, bluegrass, clover, cowpeas, rapo, and soy beans all make valuable pasturage for the brood sow and her fall litter.

FOOD SURVEY.

Counties and Cities in Which the Supply of Provisions in Retail Stores Has Been Determined.

Food stocks held in retail establishments in New York City and in the city and rural portions of 43 counties in various parts of the country were inventoried on August 31 by a detailed and personally supervised survey, conducted by the United States Department of Agriculture. Estimates from these figures make it possible to approximate the quantity of all of the food on hand in such establishments in the country. To get this result the counties were selected with great care, including some as presenting conditions which reflect varied types of life and industry. The survey of retail stocks is only one of the four now under way, the other three being the stocks on farms, in wholesale commercial establishments and storages and in the homes of the consumers. Aside from the cities and counties in which the detailed work was done, the survey of retail stocks of food will be handled by schedules through the mails.

The actual work of making the surveys is being directed by the Bureau of Markets of the department, assisted locally by the agents of the Bureau of Chemistry and of the States Relations Service. Other local agencies such as boards of trade, chambers of commerce, retail grocers' associations, farm-bureau agents, and other State, county, and city officials have assured the department of their assistance. The blanks for detailed reporting of stocks on hand are distributed locally in cities by local health and police officials under the direction of the Bureau of Chemistry, and in rural communities by county agents and patriotic organizations under the general direction of the States Relations Service.

Counties Selected.

Aside from New York, where an inventory was made, the largest city selected as a part of the basis of estimating was Cleveland, Ohio. Its county, Cuyahoga, was selected because Cleveland is centrally located with reference to large industrial centers and may be considered as a typical manufacturing and commercial center. A detailed survey of New York City was made as a separate problem; but owing to its large size it can not be used as a part of the basis for estimating for the entire country, since it would completely overshadow the total of all the other selected districts combined.

The second group of counties included the cities of Syracuse, N. Y.; Dallas, Tex.; and Altoona, Pa., with its outlying towns of Tyrone and Juniata. These three were thought to represent conditions as they exist in a city which depends on manufacturing, one which has a big agricultural back country, and one which depends on the mining industry.

The grouping, as a whole, is in accordance with population. The first group, represented by Cleveland (Cuyahoga County) is for metropolitan districts with a population of 200,000 or more, the second group includes counties with cities of a population of 50,000 to 200,000. The third group takes counties with cities 25,000 to 50,000; fourth, from 10,000 to 25,000; and so on down to 2,500, and then certain counties having no city or village of 2,500 population.

Other Group Divisions.

In the third group of counties were the cities of Montgomery, Ala.; Topeka, Kans.; Binghamton, N. Y.; and Sacramento, Cal.

The fourth group included: Concord, N. H.; Butler, Pa.; Jackson, Tenn.; Iowa City, Iowa.; and Walla Walla, Wash.

Group 5 had five cities with their outlying county population. They are: Oneonta, N. Y.; Americus, Ga.; De Kalb, Ill.; Bowling Green, Ky.; and Provo, Utah.

Group 6 included ten counties with cities of from 2,500 to 5,000 and the index cities are Springfield, Vt.; Stroudsburg, Pa.; South Boston, Va.; Allegan, Mich.; Lake Geneva, Wis.; McPherson, Kans.; Marshall, Mo.; Canton, Miss.; Stillwater, Okla.; and Marshfield, Oreg.

The final group, in counties having no towns as large as 2,500 population, included 15 towns, as follows: Eatonton, Ga.; Carthage, N. C.; Seaford, Del.; Rosedale, Ind.; Pembina, N. Dak.; Marysville, Kans.; Hartford, Ky.; Lawrenceburg, Tenn.; Enterprise, Ala.; Fairhope, Ala.; Rector, Ark.; Mansfield, La.; La Grange, Tex.; Castle Rock, Colo.; and Raymond, Wash.

Why the Places Were Chosen.

These places were selected because of the impossibility of making a complete inventory of the stocks of the smaller retail concerns throughout the country. This careful and detailed survey of the retail stocks in the representative cities and rural districts, together with results obtained from schedules that are mailed out, will form the basis on which the retail stocks of the whole country will be estimated.

It is known, of course, just what is the actual population of each of the 7 groups represented by the 43 counties, and just what proportion their population bears to the population of the group and to the country as a whole.

COTTAGE CHEESE CAMPAIGN.

To make every drop of milk useful to the food supply, the Dairy Division of the United States Department of Agriculture will launch an active campaign to promote the making and use of cottage cheese. A corps of cheesemaking specialists will demonstrate the creamery methods of turning their waste skim milk into this valuable product. Milk producers will be encouraged to send as much whole milk as possible to the creameries which undertake to manufacture cottage cheese, and efforts will be made to induce the public to eat more of that attractive and nutritious food.

To help individual farmers utilize their skim milk, groups of specialists cooperating with State agencies, particularly demonstration workers in home economics, will give practical instruction in cottage cheesemaking in the home and on the farm. The specialists will demonstrate the process before groups of farm women and in connection with regular short courses, while in certain sections they will give individual instruction.

WANTS INFORMATION AS TO SEED.

The fact that in some sections there is a shortage of good seed while in others there is a surplus makes it possible for the Committee on Seed Stocks of the United States Department of Agriculture to help in the distribution of these surpluses. The committee wishes, therefore, to locate all available stocks of good seed of agricultural crops, especially wheat, oats, rye, crimson clover (in the hull or hulled), and hairy vetch. The committee will be glad if anyone, farmer or dealer, will send information in regard to the quantities and prices of seed of the above sorts which he can offer for sale f. o. b. his shipping point, bags extra or included as the case may be. The information should give in each case the name of the variety (especially in the case of grain crops), condition of the seed as to purity, year grown, and the price. The committee will then undertake to get such information in the hands of those who want the seed. The committee hopes that this request will receive wide circulation and an *immediate* response, as it is now time to get seed in the hands of planters for fall use. Address Committee on Seed Stocks, United States Department of Agriculture, Washington, D. C.

PIT SILOS FOR GREAT PLAINS.

Pit silos if properly constructed will last indefinitely in the Great Plains region, and silage is kept as well as in the above-ground types, specialists of the United States Department of Agriculture say. As a guide to those who wish to build pit silos, a new publication of the Department of Agriculture, Farmers' Bulletin 825, "Pit Silos," gives the details of construction and drawings that make them easily workable.

CARE OF SEED CORN.

It Should Begin Immediately After Gathering and Be Continued Until the Grain Is Planted.

The same day that seed corn is gathered from standing stalks as they grow in the field the husked ears should be put in a dry place where there is a free circulation of air, and so placed that the ears do not touch one another.

This is the only safe way, according to the United States Department of Agriculture, which says that much good seed has been ruined because it was thought to be dry enough when gathered. Many farmers think that their autumns are so dry that these precautions are not necessary, yet there is no locality where the corn will not be bettered by a thorough drying treatment. If corn is left in the husk it may sprout or mildew during warm wet weather, and it is more likely to become infested with weevils.

Poor Storage Impairs Vitality.

The vitality of seed may be reduced by leaving it in a sack or in a pile for even a day after it has been gathered. During warm fall days, with some moisture in the cobs and kernels, the ears heat or mildew in a remarkably short time.

The best and cheapest treatment immediately after the ears are gathered and husked is to tie the ears singly on binder twine at about 8-inch intervals, the twine being looped about the middle of the ears so that they hang balanced and horizontal. Ordinary binder twine is strong enough to support from 15 to 20 ears.

Wire racks are cheaper in the long run and more convenient. A good form is made from welded or woven wire fencing, the upright wires being used as the hangers, and the lateral wires cut off and bent upward being used as supports for the individual ears. The lateral wires, about 3 inches long on either side of the main upright, are thrust into the butt end of the cobb. These racks will last many years and are easily stored when not in use. In use, with the corn upon them, they have somewhat the appearance of giant fern fronds. The central wire is the midrib of the leaf, and the ears of corn stand out on each side like the fern leaflets, or like leaflets on a locust tree.

Wooden seed racks, in which the ears are stored in rows on separate shelves, are convenient dryers, and have no drawbacks in a dry, breezy place, although the air can not circulate freely on all sides and dampness may be held where the row of kernels rests on the wood.

Only during unusually damp weather at seed-gathering time will a fire be necessary to help the drying. Yet if heat is applied in a poorly ventilated place, it will do more harm than good. If used, the fire should be slow and long-continued. It should be below the ears with plenty of good ventilation above them.

REPAIR WORN MACHINERY.

Scarcity of Implements Must Be Met by Putting Old Ones into Shape for Work.

The great outcry for farm production and the scarcity of machinery points to the need of some way to repair a great many implements that are now useless largely because of the neglect with which they have been treated, says the United States Department of Agriculture, which adds that the machinery manufacturers and their local sales agents should help to perform this repair service.

Throughout the country there are thousands of binders, mowers, and other farm machines rusting in the fence corners, and many of these might be made available for further valuable service. The manufacturers of farm machinery are admittedly unable to furnish all the new machines required and are paying for full-page advertisements to influence governmental authorities to insure them necessary raw materials and transportation in competition with the demand for machines of war.

The railroads of the country, according to one of their officials, are being compelled in the present emergency to rescue practically every scrap locomotive from the old-iron graveyards and rebuild them for active service. A similar plan should be adopted, says the department, for the reclamation of this cast-off farm equipment through the agency of central repair shops where the work could be done. Many of the machines might be made available for further service with repairs of comparatively small cost.

Added to the almost sinful carelessness of some farmers there has been the attitude on the part of farm machinery manufacturers in years past to favor the abandonment of worn and disabled machines in order to sell new ones; but now the time has arrived when it is difficult to supply the market with the necessary new machinery. The department suggests that representatives of the manufacturers, on the one hand, and of the farmers—such as farm bureau agents or county agents—on the other hand, should get together to establish the necessary farm machinery repair stations in convenient localities.

Plow early in the fall and then disk ground thoroughly where corn is to be planted next year, in order to combat the corn root-aphis.

WORLD'S FOOD NEEDS.

What Is Required and What This Country May Do to Supply the Requirements Next Year.

To supply the estimated needs of the United States, the allies, and in part the neutral nations of Europe the farmers of the United States must plant for next year about 238 million acres of land to staple food crops. This is 22 per cent more than the 195 million acres which represent the 10-year average plantings, and 4.5 per cent more than the large acreage—227 millions—of 1917. Compared with 1917 these acreages represent increases of 22 per cent for winter wheat, 15 per cent for all wheat, 51 per cent for rye, and 5 per cent for oats, and decreases of 6 per cent for barley and of 8 per cent for corn. Compared with the preceding 10-year average the proposed acreages represent 43 per cent for winter wheat, 5 per cent spring wheat, 29 per cent all wheat, 124 per cent rye, 7 per cent barley, 27 per cent oats, and 7 per cent corn.

These estimates of required acreages have been made by the United States Department of Agriculture, with due allowance for weather, farm-labor supply, injury to crops by insects and disease, and the production of cereals by other nations, and for other usual and extraordinary conditions as far as they may be foreseen.

Shortage of Food Products.

The war has intensified a general shortage of food products which has been growing for several years, but which this country had not felt until the war made it plainly apparent. To help solve the problem the department has not advocated any startling changes, but has restated the principles which it thinks are sound for the present and the future.

These principles are: That each community, as far as practicable, should produce its own food and feed; each community should increase the production of nonperishable products, such as wheat, rye, beans, and rice; sugar-beet and sugar-cane production should be increased in suitable localities; and the commercial production of perishables should not be increased except where there are ample facilities for transportation and market. The recommendations for 1918 are made with these points in view, with the idea that sound crop practices are to be continued, and that other cereals, notably rye, should supplement wheat.

Fertilizer and Seed.

Fertilizer stocks are low; and there are prospects of high prices and actual shortage of seed unless seed stocks are carefully husbanded. This country is producing more potash and most of the fertilizer companies

will sell it. Acid phosphate is short and the price is high, and nitrates have doubled in prices because of the demand for explosives.

Every farmer is urged to save his own seed by selection from the best producing strains on his own fields, thus insuring a supply known to be suited to the region in which it is to be grown. Reliance should not be placed on a prospective supply of imported seed, because the hazards of shipping may keep it out; or, on the other hand, present high prices may further stimulate the importation of seed of low value.

A circular, No. 75, discussing these "Food Needs for 1918," and giving the agricultural program for the period beginning with the autumn of 1918, has just been issued by the United States Department of Agriculture at Washington, D. C., and will be sent free on request.

PICK WILD BLACKBERRIES.

Demand for Jam Offers Chance for Children to Practice Patriotism and Earn Money.

Wild blackberries picked by children will help the Army and Navy to get the 11,000,000 pounds of blackberry jam they must have. In view of the shortage of cultivated blackberries, the United States Department of Agriculture urges the women and girls and boys to gather all the wild blackberries they can find, to supply commercial canning establishments.

Blackberry jam is particularly desirable because it has medicinal qualities which counteract certain intestinal troubles, in addition to its welcome place in the diet as a sweet.

The wild fruit is not as pulpy and is likely to be more seedy than the cultivated varieties, but there is an abundance in many of the Northern States. The difficulty of getting help on a commercial scale has prevented the gathering of the wild berries, but if the children can be enlisted to do their patriotic part it will give the packers a chance to supply what the military authorities need. It is also pointed out that at the prevailing prices they may get good money return for their time and labor.

In each community some local grocer should be able to learn the name of a manufacturer who may be willing to buy the berries. In New York, for example, the canneries are so numerous throughout the State that little trouble should be experienced in finding a market.

Watch your bees closely during the honey flow.

TOMATO WILT.

No Known Cure—Resistant Plants Offer Most Satisfactory Method of Coping with the Disease.

While there is no cure for plants once affected with tomato wilt, steps may be taken to avoid or prevent the disease, says the United States Department of Agriculture. The most hopeful method is by selecting the seed from resistant plants.

This disease of the tomato, known as fusarium wilt, occurs in practically all of the eastern half of the country and is common in the sandy soils of the Southeast. It has a particularly discouraging feature in that the plants may be large and beginning to set fruit before the disease shows and they begin to wilt. Usually the lower leaves show the disease first. They turn yellow and wither, and then the whole plant wilts as if for lack of water, sometimes without the characteristic yellowing of the lower leaves.

Cause of the Disease.

The disease is caused by a minute fungus which lives on decaying vegetable matter in the soil. It attacks the new roots first and goes upward through the water-carrying channels in the stem, filling them up and cutting off the moisture supply. As soon as the plant shows the effects of the disease it should be removed and burned to prevent the formation of the spores by which the fungus is reproduced.

Since the plants once affected are lost, control measures must be aimed toward prevention. The seed bed must be in uninfected soil, since a common method of spreading the disease is to set out plants from infected beds. Soil sterilization by live steam will kill the fungus. Rotation with other crops may save an infected field, because the tomato wilt organism does not affect other plants and will die out if tomatoes are kept off the ground. In a garden the location of the tomato plants should be changed each year, and if the entire garden is infected tomatoes will have to be left out, or planted elsewhere for a time.

New land may be infected by the transfer of the fungus on particles of soil clinging to implements, to the feet of workers or work animals, to old tomato stakes, or in drainage water from an infected field higher up. There is a possibility that infection may be carried on the seed, so it should be saved from healthy plants only. Seed may be disinfected by soaking it for 15 minutes in formaldehyde solution, one teaspoonful to a teacup of water. The seed should then be washed in clear water and dried.

Resistant Plants.

The most satisfactory method of control will be through the planting of strains or varieties resistant to the disease. Progress is being made by the Department of Agriculture in the breeding of such varieties, and it is expected that seed of these will be ready for distribution within two years. Growers may make resistant seed selections from their own fields if the seed is saved from healthy plants growing in a badly diseased field. Future trials on infected land will determine whether an immune strain has been found.

BEWARE OF SPECULATORS.

Shippers of Grain, Hay, and Feed Advised to Be on Outlook for Speculative Practice.

Shippers of grain, hay, and feed are advised by the Bureau of Markets, United States Department of Agriculture, to be on the lookout for what is known as "shipper's order bill of lading" transactions with unknown or irresponsible persons. Shipping car lots to such buyers under no obligation other than to pay for the shipment if they finally take it out of the cars, tends to encourage speculation and is liable to increase freight congestion. Some of these buyers order products shipped in the hope that the price will go up in the meantime and enable them to sell locally to a local dealer who will pay cash. Unless they succeed in selling to others, many of these "shipper's order" consignees have insufficient capital to pay for the goods, which sometimes fall back on the shipper.

In a case recently investigated by the department a man without financial standing, who posed as a commercial company, succeeded in purchasing large shipments of hay and mill feed. As there was no advance in price and as he had no cash with which to meet the drafts, he held the goods for several weeks in the cars on the track. Some of the cars were on the track for over 20 days before unloading. When he succeeded in selling a car, instead of paying his own cash for it, he sent his customer to the bank to release the draft. The day the department investigator was on the ground this man had 13 cars of hay and 9 cars of mill feed on the track, papers for 17 more cars en route, and a number more still to be shipped. It was stated locally that in the same kind of transaction in the past a severe decline in price rendered this individual unable to pay for 30 cars of produce, which the shipper was forced to sell at a material loss. The shippers in this case easily could have obtained facts as to their customer's responsibility from the mercantile agencies or from local banks or merchants.

BOLL-WEEVIL CONTROL.

Entomologist Reports Proved Methods That Should Increase Acre Yield of Cotton.

There is no cure-all or "easy way" to control boll weevils. Only a combination of measures, or an anti-boll-weevil system of farming, practiced the year round, will enable farmers to produce the most profitable crops of cotton under weevil conditions. Reporting studies of the habits and control of this pest covering many years of experimentation, W. D. Hunter, a specialist in the Bureau of Entomology, United States Department of Agriculture, in Farmers' Bulletin 848, "The Boll-Weevil Problem," describes this control system. It contains the formula for growing larger war crops of American cotton without increasing, and possibly by decreasing, the present acreage in this crop. Briefly, these are its main points:

Control Program.

(1) Destruction of weevils in the fall by plowing under or by uprooting and burning the plants.

(2) Destruction in their hibernating places of weevils that survive the first operation.

(3) Locating cotton fields where heavy infestation may be avoided.

(4) Early and thorough preparation of the land to obtain an early crop. This means fall plowing and winter working of the land, or the use of cover crops.

(5) Determination by experiments on local soils of best methods of spacing, both between rows and between plants in the row.

(6) Insuring an early crop by early planting of early maturing varieties and by fertilizing where necessary.

That is the working program which the cotton grower in boll-weevil territory should hang on the wall as his guide. Some of the measures are not new in principle. They are old methods which, modified and improved, have stood the test of years. They represent plain and practical farming methods and, although they may appear less attractive than many of the fantastical panaceas which spring up from time to time in cotton-growing sections they are sound and reliable. Individually they are effective in checking the ravages of the weevils and collectively they offer a practicable system which, if followed carefully, will insure a crop in spite of this pest. The system may have to undergo slight modifications to meet local conditions. For example, in some localities hand picking of weevils and infested squares at times may prove a profitable measure.

Additional Control Measures Needed.

The Department of Agriculture does not rest its case, however, with the announcement of this anti-boll-weevil system. The problem of boll-weevil control becomes more serious, the specialists say, as the pest continues its invasion of the cotton belt. Eastern planters must expect a more serious problem than that which confronted the farmers of Texas, because the humid conditions in the East are more favorable to the life of the weevils. Better means of control must be devised for the region that is becoming invaded, and, if possible, other means must be developed to reduce the enormous loss that is suffered, especially during unfavorable seasons, in Texas. The principal work of the Bureau of Entomology at this time is in attempting to devise means for this requisite additional control.

Much has been learned about the habits of the boll weevil. Many seemingly excellent theories of control have fallen before this newly discovered information. A few may be mentioned. Repellents do not repel the boll weevil. Sprays innumerable have been tried unsuccessfully. Nor are the weevils attracted to light. Lantern traps have been hung in cotton fields by many farmers, but only occasional stragglers are caught in this way, the specialists learn.

Machines employing suction and jarring devices designed to pick weevils and infested squares or to shake the weevils to the ground have proved injurious to the plants and are not sufficiently effective to pay for the cost of operation. Mechanical ingenuity is needed, however, the specialists point out, especially in developing effective machinery for aiding in the destruction of weevils in the fall and also for a better cultivation of the crop.

Weevil Causes Enormous Loss.

In discussing the extent of the damage boll weevils now cause to the cotton industry, the writer of the bulletin estimates the loss at 400,000 bales of cotton annually. Although farmers in older regions, in many cases, are increasing their production, there is loss in the newly infested regions which effsets that gain. A conservative estimate shows that since the weevil has invaded this country it has caused a loss of 4,550,000 bales of cotton, with a value of about $250,000,000.

The figures which have been cited show clearly the enormous reduction in cotton production which the boll weevil causes. In order to make the picture complete, however, it is necessary to call attention to the effect the weevil has on the production of crops other than cotton. Wherever the insect invades a region, diversification of crops and animal husbandry receive a powerful impetus. This is shown, for instance, in the State of Mississippi. For the years perceding the advent of the boll weevil, namely, 1904–1908, the average value of all crops was $116,783,104. For the boll-weevil years, 1909–1913, the average was $132,031,800. The loss in cotton production was more than offset by the increased planting in corn, forage, and other crops.

The bulletin mentioned above, which will be sent to anyone on request, contains a general account of the boll-weevil problem. It deals with the history of the insect in the United States, the damage it has done in different regions, the reasons for local variations in damage, the indications for the future, the habits of the weevil as far as they are related to control measures, and means for reducing the injury it causes by methods which have been tested in many experimental fields and by large numbers of practical planters.

NORTH AND WEST.

(Continued from page 1.)

sections this has resulted in some diminution of cultural attention given this crop, so that a few farmers are not spraying as thoroughly as should be done to prevent damages by blight and insects.

In view of the large amount of grain and other foodstuffs which must be sent to the allies it is wise to encourage the use of potatoes in bread making. A high grade of bread may be made consisting of 10 to 30 per cent of potatoes equal in food value to bread made entirely from wheat flour.

If even 10 per cent of potatoes were used as a substitute for wheat flour in bread making it would save between 25 and 30 million bushels of wheat for the allies and absorb practically the entire prospective surplus of potatoes, thus exercising a powerful influence in stabilizing potato prices. Such a use of potatoes, together with a fair use directly on the table in all homes, should quickly absorb the entire promised surplus.

All efforts should be stressed to raise every pound of potato possible. It is hoped that through plans now in the making for a more equitable distribution of the crop and greater use of potatoes directly, and in bread making, the demand for potatoes will be sufficient to absorb the entire crop at prices adequate more than to cover the cost of production, even though the costs are much higher than usual.

Conserving Food.

The campaigns for canning, drying, and otherwise preserving foods under way in all the Northern and Western States are doing much to insure a supply of food for winter use, and should be continued through the fall. Special attention should be given at this time to making fruit butters, such as peach butter, quince butter, and apple butter, and no family should relax effort in canning and drying until every pantry shelf is filled with canned, dried, and preserved food products.

Watch crops constantly so as to discover and combat insect pests.

EAT NEW CORN.

Dry and Grind at Home and Know the Delicious Nutlike Flavor of New Corn Meal.

Why eat last year's corn while harvesting this year's? Why lose the very best there is in corn by not using it when it is fresh, clean, and sweet? These queries, by the United States Department of Agriculture, are directed at those who have always eaten old degermed corn, and have never known the delicious nutlike flavor of new corn meal. In some States, says a corn expert of the department, this flavor is unknown or is merely a matter of memory with the old settlers.

Be a Miller at Home.

For less than $5 a hand mill and sieves capable of making excellent meal can be bought, and for less than $25 may be purchased a mill large enough for a community. It can be installed to be run by water, wind, gasoline, or other local power.

Instead of merely eating more corn as a necessary war measure, it is urged that Americans should appreciate and exercise the privilege of eating better corn. Instead of degerming corn to prevent its spoilage, and instead of bleaching and scouring it to remove odors and impurities, it might better be eaten while it is still fresh, pure, and sweet. To have this privilege the meal must be ground locally from new corn. Yet practically all of the commercial meal of the Northern and Western States during the fall months when this new corn is readily available is the product of old degermed commercial corn. In November some of the crop is dry enough to leave the farms, and the meal from this corn does not get back to the farmers until December or later.

Animals Know What Is Best.

Squirrels, coons, dogs, and other animals relish new corn and even refuse to eat old corn unless compelled by hunger. Rats and mice usually eat only the germ—the richest and best part of the kernel—and leave the rest. This germ, highest in flavor and food value, is not available to man in the ordinary corn meal of commerce. In that form one is likely to get stale corn, from which rats and mice have previously eaten the choicest part, and degerming machines have removed the rest to prevent further spoiling. "Why," asks a specialist, "should we make our corn products so poor that they can not spoil? Why pay the freight both ways, and several commissions, only to get corn meal with 3 per cent of its oil removed, when home grinding would give a more wholesome and palatable product at less cost?"

The excellence of this new corn meal has long been—but wrongly—ascribed to water-power and burr-stone grinding. The method of grinding has nothing to do with it. The meal is good because it is fresh and from the new whole grain. It merely happens that in parts of the South where the people know and appreciate the good quality of this fresh, sweet meal, it is ground largely in the water-wheel mills using the old-fashioned millstones. As soon as the corn is ripe it is dried in the sun and then used while it is fresh and clean. In the commercial meals the germs have been removed because the oil they contain is likely to become rancid after storage, and this tends to spoil the whole product.

Americans, it is urged, are under obligation to eat more corn, because of starving nations and a world scarcity of wheat; yet Americans are eating less corn than they ate years ago. Corn-producing countries are the ones that should eat it, because it is at its best when it has not been transported long distances. For all of these reasons, the United States Department of Agriculture suggests that American families return to the simple-life ideal and make their own corn meal and hominy at home during the fall and winter months.

MARKETING.

(*Continued from page 1.*)

Cotton that is not to be sold as soon as it is ginned should be put in a first-class warehouse on a receipt that may be used as collateral in securing money quickly if it is needed. Where there is no convenient warehouse or the time it is expected to hold the cotton is not long enough to justify the expense or trouble of storing, the cotton should be protected by a building or shed on the farm. In the absence of shelter the cotton should be placed on heavy timbers which keep it off the ground and permit free circulation of air under it. A tarpaulin covering is desirable, but at any rate cotton should not be allowed to rest directly on the ground.

Rice, as soon as harvested, should be put in shocks well built and firmly braced. The saving gained by prompt and efficient shocking is more than worth the effort.

Protect Grain from Fire.

A considerable amount of grain in the field is lost each year by fires which reach the stacks through dry stubble or through lightning. Fire protection demands that a large number of stacks should not be placed in a small space and that each group of stacks be safeguarded by means of a fire-break. Special precautions should be given to preventing threshing engines setting fire to grain.

Many rural organizations both of men and women are making special effort to give their work practical significance. They are preparing programs a number of months in advance and arranging subjects which will link their efforts to urgent national and local needs, which promise to yield the most tangible results for their membership.

The directors of a number of county and local fairs this year are making special efforts to encourage exhibits and activities which will be of direct educational benefit to their localities. Many, therefore, are placing greater emphasis on exhibits of products and livestock, and on demonstrations of improved methods.

The parcel-post service offers certain possibilities well worth investigation to persons who have small surpluses of various farm products. The widespread knowledge of the need for conserving the food supply, and the apparent willingness of the American people to cooperate to this end should stimulate interest in parcel-post marketing. Parcel-post marketing should become peculiarly useful in disposing of small quantities of specialties or products of unusual quality.

Market News Service.

The market news service, especially that of supplying information regarding daily shipments of fruits and vegetables from all parts of the country, and prices at all large markets, is being made use of by many farmers who wish to market their perishables to advantage. This service will be developed rapidly during the coming months. Those interested in obtaining this official market news should write to the Washington office or the nearest branch office of the Bureau of Markets given on the list below and ask that their names be placed on the mailing list for this service.

Colorado.—Room 26, Customhouse, Denver.

Illinois.—Room 602, Distributors Building, 236 North Clark Street, Chicago.

Massachusetts.—Room 1806, Customhouse Tower, Boston.

Minnesota.—Room 300, Market State Bank Building, Minneapolis.

Missouri.—Room 205, Produce Exchange Building, Kansas City. Rooms 400-401, Old Customhouse, Third and Olive Streets, St. Louis.

New York.—Room 232, Post Office Building, Buffalo. Room 507, Fruit Trade Building, 204 Franklin Street, New York City.

Ohio.—Room 307, Johnston Building, Fifth, between Walnut and Vine Streets, Cincinnati.

Pennsylvania.—Room 315, Insurance Exchange Building, Third, Walnut and Dock Streets, Philadelphia. Room 303, Kellerman Building, Eighteenth Street and Pennsylvania Avenue, Pittsburgh.

Washington.—Rooms 404 and 424, Post Office Building, Spokane.

A wheatless ration for egg production has been found to compare favorably with rations containing wheat. In the wheatless ration the scratch mixture was 2 pounds of cracked corn and 1 pound of oats, while the dry mash was 3 pounds of corn meal and 1 pound of beef scrap. About equal parts of the scratch mixture and the dry mash were fed.

HUSK SOUTHERN CORN.

Husked Corn Is Freer from Insects and Can Be Stored and Fumigated More Economically.

Southern farmers should husk their ear corn in the field and not store it with the husks on, according to specialists of the United States Department of Agriculture. The husks carry from the field to the crib the insect pests that attack corn, and the damage to the corn is thereby increased. It is possible to fumigate husked corn more effectively at less expense, and a much greater amount of husked corn can be stored in the same crib room.

This advice, which is contrary to the custom more or less general in the South of storing corn with the husks on, is based on recent investigations. It is found that cribbing corn with the husks on insures carrying practically every insect from the field to the crib, and it practically doubles the volume of storage room required per bushel of corn. The amount of carbon disulphid needed to treat unhusked corn in open cribs is much larger than that required for husked corn in closed cribs. Husking in the field will leave at least three-fourths of the insects on the husks in the field. This will reduce subsequent injury during storage.

There is no need for an open crib in which to store the thoroughly well-matured corn of the South. Storage rooms must be made tight enough for fumigation. The dosage required for bare ears will be about 10 pounds of carbon disulphid per 1,000 cubic feet, or one-half the amount needed with the husks on. Store as soon as the corn is thoroughly matured and fumigate promptly for best results. If insect attack develops in the crib treat again, using a heavier dosage. Doing the work during warmer weather will increase the effectiveness of the gas.

DONT'S FOR THE JELLY MAKER.

Don't have soft jelly.—You will if you use more sugar than is required for the fruit juices or if you do not boil the juice long enough after the sugar has been added to drive off the excess of water.

Don't have tough jelly.—You will if you use too small an amount of sugar for the quantity of juice or if you boil your juice too long after the jellying point has been reached.

Don't have crystals in jelly.—These appear when there is an excess or deficiency of sugar. They are found sometimes when the juice has been boiled to too great a concentration before the addition of sugar or when the sirup spatters on the side of the pan, where it dries and is eventually carried into the finished product, seeding it with crystals. In grape jelly making crystals may be more certainly prevented by using a small portion of apple jelly juice, or, better, orange pectin solution, as suggested in Farmers' Bulletin No. 859, entitled "Home Uses for Muscadine Grapes."

Don't have cloudy jelly.—This may be due to having cooked the fruit too long before straining the juice or to not having used sufficient care in straining. Apple or crabapple jelly sometimes grows cloudy on standing, principally because partly green fruit has been used.

If you wish to know just how to make good, bright, clear jelly, send a card to the Division of Publications, United States Department of Agriculture, Washington, D. C., asking for a copy of Farmers' Bulletin 853, "Home Canning of Fruits and Vegetables."

STORE WINTER SUPPLIES.

Fruits and Vegetables Required During the Nongrowing Season for the Family.

A family of five, including two adults and three children under 12 years of age, under ordinary living conditions, should have stored for each month of the winter season the following food supplies: 1 bushel of Irish potatoes; ½ bushel of other root vegetables such as carrots, turnips, and parsnips; 25 quart cans of other vegetables; and 20 quarts of canned fruit and preserves. These figures are based on estimates by the United States Department of Agriculture, which adds that most of this should come from the perishable products of the many home gardens of this year.

With these figures as a basis, it is thought that almost any family may calculate its requirements, taking into consideration the length of the winter season in any given locality. Thus, in the South, where food crops may be grown in the fall, the winter allowance may be less than for the far North, where one must count on supplies for several months longer.

There is still time, says the department, for a final drive in canning, preserving, and drying. In using dried vegetables, it may be assumed that a given quantity of dried vegetables is equal to four times its bulk of canned vegetables; that is, one-fourth of a quart of dry string beans when soaked over night is approximately equal to one quart canned.

Sod land to be used for corn next year should be plowed immediately after haying and cultivated deeply the rest of the summer to reduce the number of wireworms.

POTATOES SAVE WHEAT.

Irish and Sweet Furnish Starch and When Plentiful May Replace a Considerable Amount of Cereals.

Americans, if they would think of the humble potato as a "breadstuff" rather than merely as a "vegetable," would find that they could spare much bread from their diet without inconvenience, the dietetic specialists of the United States Department of Agriculture point out. The potato—Irish or sweet—differs from almost all other common vegetables in that it supplies important amounts of starch, and starch is the chief food element we get from bread. Green vegetables, with which potatoes often are classed, supply little or no starch and energy, and are valuable in the diet principally for the mineral substances and acids they supply and for giving bulk to the diet. Potatoes, of course, supply valuable mineral substances useful in the building up, repair, and regulation of the body, but they have won their great place in the diet of a large part of the world because they supply starch which otherwise would have to be obtained from cereals.

More Potatoes, Less Bread.

The more potatoes you eat the less bread you need at the same meal. Potatoes, of course, contain a larger percentage of water than does bread, so that weight for weight they are not equivalent to bread as a source of starch and energy. As a general proposition, however, one medium-sized potato (6 ounces) would supply about as much starch as two medium-sized slices of bread (about 2 ounces). Five parts of potato are equal to one part of cereal in a mixed diet. Therefore, those who make potatoes an important dish safely can cut down the amount of light or hot bread, wheat mushes, or macaroni they eat at that meal, and yet supply their bodies with this important food—starch. Wherever potatoes are locally plentiful or relatively cheap, especially in the case of the early or summer crop which does not store well, housewives are urged to use them plentifully at all meals as a substitute for wheat.

The more potatoes you eat the less bread you need at the same meal.

Arsenate of lime may be used in place of the more expensive arsenate of lead, but should not be used on plants with delicate foliage, such as the stone fruits.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., SEPTEMBER 12, 1917. No. 6

ROTATIONS FOR WHEAT.

Adopt Cropping System This Fall to Insure Larger Production of Needed Cereal.

Whether eastern and southern farmers can return their allotment of the billion-bushel wheat crop next year will depend in large part on how they arrange their crop rotations—how they select fields for planting to wheat this fall. In special publications soon to be issued, wheat specialists of the United States Department of Agriculture will call attention to the importance of rotations in the greater wheat production plan.

Mention crop rotations to a farmer who does not practice them systematically and he is likely to get the impression that such a system of farming is rather an unnecessary, complicated round. And yet, once understood, no theory of farming is simpler or more logical or more necessary, the specialists point out.

What happens when land is cropped continuously to wheat is a depletion of soil fertility, a deterioration in the physical condition of the soil, accumulation of plant diseases in the soil, increased growth of weeds, mixtures of varieties, and lowering yields of poorer quality. Even if soil fertility and a fairly good physical condition of the soil are maintained by the addition of chemicals, continuous cropping is not advisable on account of its cost and the further reasons mentioned.

Rotations for Eastern States.

A simple rotation for successful wheat production in the Eastern States should include a legume such as clover, cowpeas, or soy beans, and a cultivated crop. Legume crops are used in rotations because they gather nitrogen in the air and store it in the soil and also because they help maintain the supply of humus. The clovers and vetch in the Northern States and cowpeas, soy beans, velvet beans, vetch, and crimson clover in the Southern States are the principal legumes which may be used for this purpose. Vetch usually is grown with rye in the East and South. In many of the humid areas rotations in which corn, tobacco, cowpeas, or soy beans precede wheat are practicable.

A good rotation especially for the northern part of the eastern wheat region is corn, oats, wheat, clover, and timothy. This may be modified by the omission of oats or timothy, or both. Cowpeas or soy beans may be substituted very profitably for oats in many localities where oats do not pay, or wheat may be grown twice in succession. Tobacco may be substituted for oats in tobacco-growing localities and barley may be used as a substitute in other places. It is being recognized, specialists declare, that wheat after cowpeas or soy beans is more profitable than after corn; hence a rotation of corn, cowpeas, or soy beans, wheat and clover, is advisable where these legumes are adopted.

On soils suitable for wheat in the northern part of the cotton belt this rotation is suggested: Cotton, with crimson clover sown at the last cultivation and plowed under the following spring. This is followed by corn, with cowpeas sown between the rows at the last cultivation. Wheat then is planted, followed by cowpeas, which in turn are followed by rye for cover and green manure. The cowpeas following the wheat crop may be cut for hay or they may be disked in or plowed under as green manure.

Cropping System for Southern States.

Wheat should be grown only in rotation with legumes and cultivated crops in the Southern States. Local conditions should determine the rotation and the particular crop to be used. Wherever possible wheat should follow some legume crop, such as cowpeas or soy beans, as better yields are obtained after these crops than after corn.

In the southern part of the cotton belt, where the boll weevil is a serious pest, the following rotation is giving good results:

First year.—Cotton. The cotton stalks plowed under early and wheat sown.

Second year.—Wheat, followed by cowpeas or soy beans to be cut for hay.

(*Continued on page 7.*)

"Shall we be more tender with our dollars than with the lives of our sons?"

W. G. McADOO,
Secretary of the Treasury.

SAVE YOUR MONEY TO BUY A U. S. GOVERNMENT BOND

OF THE

SECOND LIBERTY LOAN OF 1917

TO HELP YOUR COUNTRY AND YOURSELF.

MORE WINTER GRAIN.

Conferences Indicate That Difficulties in Seeding of More Wheat and Rye Are to Be Overcome.

That a determination exists among farmers in practically all the winter-grain growing States materially to increase the acreages seeded to wheat and rye this fall, in accordance with a program recommended by the United States Department of Agriculture, has been brought out by a series of five conferences with leaders in agriculture and activities closely related to agriculture, conducted by representatives of the department throughout the United States. The conferences were held in Washington for the Eastern and Northeastern States; in Atlanta for the Southeastern States; in Indianapolis for Indiana, Ohio, Michigan, Wisconsin, Illinois, and Kentucky; in Kansas City for Missouri, Iowa, Minnesota, South Dakota, Wyoming, Colorado, Nebraska, Kansas, Oklahoma, New Mexico, Arizona, Texas, and Arkansas; and in Spokane, Wash., for the remaining States.

The conferences were attended by representatives of the United States Department of Agriculture, grain farmers, officials of agricultural experiment stations, State colleges of agriculture, and State departments of agriculture, bankers from agricultural communities, and editors of agricultural journals.

In opening the conferences representatives of the United States Department of Agriculture emphasized the fact that wars are no longer wars only of armies but are now wars of nations, and that it is essential that people engaged in all industries and callings shall do their share in carrying the nation to victory. Especially important work, it was pointed out, is the share of the farmer, who produces materials to support and feed the nation and its fighting forces. Of the contributions of the farmer, it was shown, the bread grains are especially important in the present emergency.

The program considered at the conferences called for an increase of 18 per cent in the winter-wheat acreage, and 23 per cent in the rye acreage of the entire country, and apportioned these increases among the various States in accordance with existing local conditions. It was explained by representatives of the United States Department of Agriculture that after careful consideration, grain specialists of the department and of

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State agencies had agreed that in general the increases must come in regions where wheat growing is already successfully in progress, since the necessary knowledge and machinery are there available.

In a number of sections, it developed from the conferences, the temporary enlargement of the wheat acreage not only will be easily accomplished but will be to the advantage of agriculture since it will place rotations on a better basis and since wheat may be handled with less labor than some other crops. In some sections, too, the prospect of good prices next year, coupled with good yields this year, will operate, it was pointed out, to bring about an increase in acreage sown to grains this fall. It was brought out, however, that in many other sections there are a number of difficulties that must be overcome if the acreages of winter grains are to be materially increased. Representatives from these sections declared that every effort will be made by farmers to accomplish this and that they believe the efforts will be successful.

Labor and Other Problems.

Among the difficulties facing the grain farmers in many sections are shortage of labor, shortage of good seed, and shortage and high prices of proper fertilizers. Other problems concern the combating of diseases and pests, the marketing of grain to best advantage, and the maintenance of a proper balance of agriculture.

Farm-labor shortage, it developed, is perhaps the chief difficulty encountered by farmers who seek to increase their winter-grain acreage. This is due to a number of causes, among which are the offering of higher wages by industrial plants and the need of men for the military organizations of the country. These causes can not be removed, it was pointed out, and therefore steps must be taken to obtain the necessary labor power through specially devised channels. The suggestions for such steps made at the conferences included the careful taking of labor censuses to determine laborers who could be made use of on farms, the effort to make arrangements for the release of industrial laborers for short intervals when labor is most needed on the farms, the effort to arrange for the later opening of high schools this fall and their earlier closing next spring in some sections so that boys in such schools may assist in farm operations, the greater use of permanent married laborers who may be quartered on the farm, and a more general exchange of labor among farmers. It was also suggested by representatives of States along the Mexican border that efforts be made to bring about the freer admission to the United States of Mexican agricultural laborers. The operation of State labor exchanges has proved satisfactory in some States, it was pointed out, notably in Colorado.

While the military draft will necessarily accentuate labor shortage in agriculture as it will in all other industries, it was stated in summing up the labor situation, it is a fixed condition which must be met. Canada, with a population very much smaller than that of the United States, it was pointed out by one speaker, now has more men under arms than the total which the United States is attempting to raise, and yet Canada is planning to increase its agricultural production. The country already has made a remarkable record in this direction, it was declared, and surely the United States should be able to do as well.

The Seed Situation.

The obtaining of good seed, it was found, is an important problem in many of the States, and the problem of major importance in some. The work of the committee on seed stocks of the United States Department of Agriculture in locating good, available seed and seeking to help communities needing seed to obtain it, was explained to the conferences and States not having seed committees which can cooperate with this Federal agency were urged to create them. In a number of States a survey of seed stocks has been made by county agents, millers, bankers, elevator men, and others. Once the seed has been located, plans for its distribution vary in the several States. One of the principal problems to be solved is the matter of financing the farmers in the purchase of winter wheat. Usually, it developed, it is possible to work out satisfactory arrangements in the counties through the assistance of local bankers, millers, and elevator men. For farmers who can not present security for loans because of crop failures, etc., the plans adopted usually call for a return of two bushels for each bushel advanced as seed, or, under another plan, for the return of one-fifth the crop from the seed advanced.

Under the Nebraska system, it was pointed out, the State Council of Defense called a conference of county agents, local bankers, millers, elevator men, and others to work out a plan for furnishing seed to the farmers. The bankers agreed to supply money at 6 per cent and the elevator men agreed to supply seed at cost. The farmers were to apply for seed either to elevator men or to the State College. If possible, they were to pay cash for the seed, but if they could not do this they were to call on the bankers for loans. If the bankers could not furnish loans, the farmers were then to apply to the State College and the Council of Defense. In many cases, it was said, where farmers had good seed wheat and could not afford to hold it they were financed by millers and elevator men.

In Kansas, lists showing results of a seed survey were distributed widely and were made use of to facilitate distribution. The county committees were active in giving assistance where it was needed. In this State, it was pointed out, the plan of returning one-fifth the crop from seed advanced is considered a last resort.

A resolution was adopted at the Kansas City conference declaring that a seed survey should be made immediately in each State, where wheat is still in the field, under the direction of the Agricultural Extension Service.

In regard to the prices of seed wheat, a resolution was adopted at this conference calling on holders of winter wheat suitable for seed purposes not to ask a higher price than 10 per cent above their local market, this price to be exclusive of sacks. This was not meant to cover the price of pedigreed seed. It was further resolved that the conference recommend the use of certified or pedigreed seed wherever it is obtainable in order to increase the yield per acre.

Protective Measures.

It was the sentiment of the conferences that wherever there was likelihood that smut exists in seed wheat it should be treated to prevent the development of the disease in the growing crop. The use of the formaldehyde treatment for stinking smut was urged by representatives of the United States Department of Agriculture. The advantage of planting wheat after the fly-free date was emphasized as a means of minimizing damage due to the Hessian fly. It was brought out that in order that possible injury from late seeding may be overcome to as great an extent as possible, especially good seed-bed preparation should be practiced.

In the discussions on agricultural balance it was pointed out that the proved good agricultural systems prevailing in the country should not be upset in carrying out the program for increased wheat and rye production. Even greater increases in production may be required by conditions next year and the years following, it was stated. With this possibility in view it is important, it was agreed, that every precaution be taken to maintain good farming methods, to keep up the fertility of the soil, agricultural organization, and the other factors on which good yields depend.

The Rye Situation.

The acreage seeded to rye in the various States as well as that seeded to wheat can be increased in accordance with the program of the department, it was brought out in the conferences. Rye, it was agreed, is of great importance in the present emergency because it can be grown profitably on lands not well adapted to the production of wheat and because it is in good demand for export under the existing conditions. Much work has been done in the last few years in some States to improve the rye crop, it developed. This is especially true in Michigan, where a new variety, Rosen rye, has been used and is making rye popular again in the State. Stocks of pedigreed rye have been distributed in the State for several years and have given an average increase of 6 bushels per acre over ordinary rye.

A similar condition exists in Wisconsin with reference to Petkus and Schlanstedt ryes. In the cotton belt the Abruzzes rye, which was introduced by the department from Italy a few years ago, and in the extreme southern portions of the cotton belt the variety known as South Georgia are superior to the common northern rye. In the northern portions of the cotton belt the North Georgia and Virginia rye gives good yields of grain.

FATTEN EARLY PIGS.

First Fall Markets Are the Highest—Pastures and Grain Forages Give Economical Results.

Pigs which were farrowed early and are about six months old at this time may profitably be finished now and rushed off to market, says the United States Department of Agriculture. The early fall market has been the highest market for a number of years, because the number of well-finished hogs arriving at this season is limited.

Pigs may be fattened quickly and cheaply on nutritious pasture when supplemented by a full grain ration. After deducting the pork which would have been produced by the same amount of grain fed in dry lot, every acre of these pastures produces from three to six hundred pounds of pork. The full fattening power of the grain is realized as well as a profit on the pasture consumed.

Pastures to Use.

In the corn belt and Eastern States alfalfa, clover, and rape give best results. Pigs should be continued on these feeds until fat, usually for a period of six weeks at least. Alfalfa and clover may be pastured as long as forage is required, and they will produce the largest gains due to pasture. An acre of alfalfa furnishes pasture for fourteen to sixteen 150-pound hogs during this short fattening season, while clover will carry from three to four hogs less per acre. Rape is an excellent forage, and although it does not produce as much pork per acre as the two legumes previously mentioned, it returns very good profits for the trouble and expense of planting the crop. It affords pasture for a period of four to six weeks for ten to twelve 150-pound hogs per acre.

Methods of Feeding.

If the pigs are hand fed it will pay to go slow the first week and gradually get them on full feed. After they are accustomed to the method of feeding, they may be pushed along as rapidly as possible without much danger from loss of appetite. Even on leguminous pasture some protein supplement, such as tankage, should be fed with the grain in the proportion of one part of tankage to ten or fifteen parts of grain. A daily ration equal to 4 per cent or 4.5 per cent of the live weight is the maximum amount of grain that a pig will consume.

The self-feeding method is a very efficient system of feeding during this period, and produces results equal to, or better than, those obtained by hand feeding. Grain is consumed more rapidly and economically, causing the pig to attain a marketable weight in a shorter time and with a smaller amount of grain.

Fattening Pigs in the South.

By the use of several of the summer forage crops of the South pigs can be grown cheaply and come to the fattening period growthy, healthy shotes, ready to make rapid and economical gains upon rich foods.

For fattening at this early season use should be made of the grain-pasture crops, soy beans, and cowpeas, and of early sown sweet potatoes. These crops will fatten hogs quickly and require only a small amount of grain to give good results.

On fairly rich soil, soy beans will produce more feed than the other forages. Each acre will afford pasture for ten 150-pound shotes for six to seven weeks. In order to insure against the production of an inferior soft pork, a one-third corn ration should be fed in connection with the soy-bean pasture, especially during the latter part of the fattening period, and when such a system is followed each acre of soy beans will produce from four to seven hundred pounds of pork.

Cowpeas succeed better on poor soils than do soy beans, but their value as a pork producing crop is much less. Fully twice as much grain must be fed with cowpea pasture as was recommended in the case of soy beans in order to obtain equally rapid and heavy gains. When a one-third grain ration is fed in connection with cowpea forage one acre will carry eight 150-pound shotes from four to five weeks, and the pork-producing power will be correspondingly reduced under that estimated for soy beans.

The southern farmer is familiar with the culture of sweet potatoes. They may be used to very good advantage in the production of pork. The pigs do their own harvesting, and when a high protein supplement such as soy-bean meal, or tankage is fed in addition in order to balance the ration, one acre will produce from four to eight hundred pounds of pork in a four weeks' grazing period, depending upon the yield of potatoes.

PINK BOLLWORM SPREADING.

Explorer for Department Reports Seed from Infested Territory Planted Near Eagle Pass, Tex.

That the pink bollworm is becoming widely distributed in Mexico, and through shipments of infested seed is likely to appear much nearer the Texas border this year, is the report brought back from Mexico by a representative of the Federal Bureau of Entomology, who recently explored the territory in northern Mexico now infested by the bollworm.

Near Eagle Pass, Tex., on the Mexican side, the representative found a field of 60 acres of cotton planted with seed obtained in the Laguna region of Mexico. This region now is widely infested with the insect, and it is considered likely that the pest will become established much nearer the Texas border as the result of plantings of infested seed. Such seed has been planted at Morales, near the town of Allende, about 50 miles from Eagle Pass, and even nearer the United States, at a point opposite Del Rio. Agents of the United States Department of Agriculture are keeping a close watch of the territory along the Mexican side and will endeavor to stamp out any outbreaks which may occur this season.

The wide distribution of the pest in the Laguna region was shown by samples of seed obtained by the entomologists. Of 40 samples collected throughout this region, 30 were infested. In some parts of the Laguna section the new pest has not attracted much attention, the specialist reports, perhaps because its seriousness is not yet appreciated. In other localities, notably the southeastern part of the Laguna, it has reached such numbers as to interfere seriously with the cultivation of cotton.

The rapid spread of the pink bollworm in Mexico probably is due to the wide demand for seed of the Egyptian variety in which the pest was carried to this country. The pink bollworm was first introduced in Mexico in 1911 through the importation of 125 sacks of Egyptian seed, which were planted in the vicinity of Monterey. The plantings from this seed yielded well and a demand arose for the seed. Much of it was sent to the planters in the Laguna district.

Pink Bollworm Not in Texas.

The experts state that reports that the pink bollworm has established itself in Texas are erroneous. In the past few weeks there has been an unusual outbreak of the common bollworm of cotton, an insect which in one stage assumes a reddish color. It is believed that the reports are due to the finding of the one which has been common in Texas for many years.

When lambs are weaned, keep them on the old pastures for a few days and remove the ewes to pastures as far away as possible. When accustomed to being by themselves, the lambs should be put on good fresh feed.

Care should be taken to dry off the ewes properly after their lambs have been taken away; this is done by milking out the ewes at intervals of two or three days after the separation until the ewes are dry.

Every good ewe lamb should be saved.

USE CHEAPER FEEDS.

Corn Fodder, Straw, and Other Roughages, When Fed with Concentrates, Make Good Rations.

"It is time to quit shoveling grain indiscriminately into live stock. Good live-stock farming demands it and the need of more food requires it. Feeding grain to meat animals with a lavish hand is responsible for one of the greatest feed losses on the farms of this country. Hay, fodder, silage, and pasture are the cheapest feeds and will carry animals along with a minimum of grain. Keep the frames of the young animals developing on these cheap feeds. Withhold the full grain ration until the finishing period arrives. Breeding cattle may be wintered on the cheaper feeds."

This advice of animal-husbandry specialists of the United States Department of Agriculture to stock feeders is not emergency advice only; it is the sound logic of meat production, which American farmers must learn if they are to compete successfully with European meat producers in the coming generations. These are good days to learn the lesson of feed conservation. In Farmers' Bulletin 873, "The Utilization of Farm Wastes in Feeding Live Stock," specialists tell how to use these cheaper feeds in rations for cattle, sheep, and horses.

A tremendous waste of feeding stuffs occurs annually on American farms, according to figures presented in this publication. In 1914 about 120,000,000 tons of straw were produced in the United States. Of this amount 55 per cent was fed to live stock, 15 per cent was burned, 8 per cent sold, and 22 per cent plowed under or otherwise disposed of. Corn stover produced in the United States is estimated at 245,253,000 tons, of which 81½ per cent is fed to cattle and other stock. No figures were obtained to show the percentage that is wasted in the feeding, but at least 35 per cent of the total amount produced represents actual waste.

This waste of corn stover can be checked, it is said, through use of better methods of feeding fodder and stover and it can be almost entirely stopped through the use of silos. Straw and stover are best utilized for feed when accompanied by concentrates, such as cottonseed meal. If the large amounts of cottonseed meal ordinarily used for fertilizer in the south were, instead, fed to live stock and the manure used for fertilizer, the value of the meal would be increased from 50 to 85 per cent.

Practical experience as well as experimental work has taught that straw and stover can be used very economically in the rations of almost all kinds of live stock. They can be used in the fattening rations of all farm animals except hogs and should compose the larger part of all wintering or keeping rations of cattle, sheep, and horses. Breeding herds of beef cattle or dry dairy cows can be successfully kept on rations composed largely of these roughages. Flocks of breeding ewes do well on such feeds when some grain is added. Horses doing very light work or no work at all need little grain if given a plentiful allowance of clean, light straw or stover. Under certain conditions, of course, grain should be added to the ration, but now it should be conserved as largely as possible for human consumption. The bulletin mentioned suggests various rations which are made up principally of these waste feeds.

INCREASED HEMP ACREAGE.

Estimated Planting More Than Double That of Last Year.

Heretofore two-thirds or more of the hemp produced in this country has been grown in Kentucky, and the fiber is generally known in the market as Kentucky hemp. This season, for the first time in the history of the crop in America, more than half the acreage is outside of Kentucky, although the area in that State is greater than it has been before in 20 years.

The estimated acreage of 1917, compared with the two preceding years, is indicated in the following table:

Acreage in hemp in the United States.

States.	1915	1916	1917
Kentucky	6,500	13,500	18,000
Ohio	400	1,000	1,500
Indiana	500	800	2,400
Michigan			400
Wisconsin	400	1,800	7,000
Minnesota			500
Illinois			100
Iowa			500
North Dakota		40	5,000
South Dakota		40	500
Kansas			300
California	600	1,600	5,000
Total	8,400	18,780	41,200

The season has been too dry in North Dakota and northwestern Minnesota, and also in Kentucky, for the best growth of hemp, but elsewhere conditions have been generally favorable. A very large proportion of this hemp is from seed of the varieties "Minnesota No. 8" and "Kymington," developed by selection for eight years at the Minnesota Agricultural Experiment Station, then four or five years by the United States Department of Agriculture at Washington.

There are no indications of overproduction from the increased acreage, for the demand for hemp twines, oakum, and packing is keeping ahead of the supply, and the finer grades of dressed hemp are being used to take the place of flax.

PROFIT IN SHEEP.

Income from Farm Flock at Middlebury, Vt.—Profitable Home Market for Crops.

The income from a pure-bred flock of Southdowns at Middlebury, Vt., during the year from August 1, 1916, to August 1, 1917, was $13.37 per ewe. After the proper allowances had been made for the cost of the feeds which must always be purchased, including the rent for pasture and forage crops, the following prices were received for the home-grown products when marketed through the flock:

Corn	per bushel	$1.97
Oats	do	1.05
Roots	per ton	9.20
Hay	do	19.72

The flock consisted of 42 ewes and 2 rams. Breeding began on September 12, and 40 of the ewes dropped 50 lambs, 44 being on hand July 7. These lambs averaged 66.9 pounds on that date and on basis of market prices for that week were worth 13 cents per pound at the farm.

During the fall the flock ran on 28 acres of pasture, being fed in addition a light grain ration. In November hay feeding began, and the flock was removed from the pasture. During the winter some roots were fed. The lambs began to come in February, and creeps for grain feeding were provided in order that the lambs might learn to eat grain as early as possible. They began to eat the grain at about 2 weeks of age, and grain feeding continued until July 7. On May 1 the flock was turned on pasture supplemented with a grain ration. Here the flock remained up to August 1.

The gross returns from the flock are as follows:

Wool (278.25 pounds, at 64 cents)	$178.08
Lamb (2,943 pounds, at 13 cents)	382.59
	560.67

The amount of feed consumed is shown by the following table:

	Ewes.	Lambs.	Total.
Corn ... bushels	42.8	8.9	51.7
Oats ... do	73.4	18.6	92.0
Bran ... pounds	1,171	392	1,563
Roots ... tons	1.1		1.1
Meal ... pounds		605.6	605.6
Hay ... tons	11.8		11.8
Pasture ... acres	28		28
Forage ... do	1	1	2

Since the average farm flock will pay for the labor expended on it by the cleaning up of weeds in pastures and the production of manure, no charge for labor has been made.

The cost of purchased feeds were figured at the following prices:

Bran	per ton	$30.00
Linseed oil meal	do	40.00
Pasture rent	per acre	2.50
Forage crops rent	do	3.60
Seeding	do	3.75

After making these charges and deducting them from the gross income, there is left a balance of $441.60. This represents the amount received for the home-grown feeds at the following prices:

Corn	per bushel..	$1.97
Oats	do....	1.05
Roots	per ton..	9.20
Hay	do....	19.72

Since these prices are higher than the market prices of the same products at harvest time, it can be seen that the farmer can find a ready and profitable market where he sells feed stuffs through the medium of the farm flock in the form of lamb and wool.

ESTIMATED WHEAT REQUIREMENTS.

In Department of Agriculture Circular 75, which recommends the sowing of 47,337,000 acres to winter wheat and 5,131,000 acres to rye this fall, is given the following statement regarding the estimated requirements of the United States and the allied and neutral countries of Europe for 1917–18:

To supply the estimated needs of the United States, of the allies, and in part of the neutral countries of Europe next year, it would be necessary to plant in the United States for 1918 about 48.7 million acres of winter wheat, 19 million acres of spring wheat, 5.6 million acres of rye, 7.9 million acres of barley, 45.2 million acres of oats, and 111.5 million acres of corn. Compared with the 10-year average, the proposed acreages represent increases of 43 per cent for winter wheat, 5 per cent spring wheat, 29 per cent all wheat, 124 per cent rye, 7 per cent barley, 22 per cent oats, and 7 per cent corn, or a total increase of 22 per cent over the 10-year average of these cereals combined. Compared with 1917, these acreages represent increases of 22 per cent for winter wheat, 15 per cent for all wheat, 51 per cent for rye, and 5 per cent for oats, and decreases of 6 per cent for barley and of 8 per cent for corn, or a net increase of 4.5 per cent over the total 1917 acreage of these cereals combined. With the food requirements of the United States and the allied and neutral countries of Europe for next year in mind, the question of the acreage which it is advisable and practicable to plant demands serious thought.

MOISTURE TESTER MAY CAUSE FIRE.

The practice of locating moisture testers in grain elevators increases fire hazard. While the United States Department of Agriculture has no records of fires actually due to this cause, it strongly recommends that testers and similar apparatus be installed instead in offices, engine rooms, or other suitable points outside of the elevator proper.

HARVESTING SOY BEANS.

Inexperienced Growers Should Inform Themselves as to Proper Methods and Avoid Losses.

For the information of farmers who are beginning to sow soy beans for grain rather than for hay and who are unfamiliar with the handling of the plants under the former conditions, the United States Department of Agriculrure will shortly publish a Farmers' Bulletin, "Harvesting Soy Beans for Seed." The demand for these seeds for use in the production of oil, feed cake, and ather bean products is rapidly increasing and the farmers of the United States are preparing to meet this demand.

The character of growth, the uniform maturing habits, and the heavy seed yields of the soy beans, says the bulletin, contribute to the ease of harvesting and recommend the plants for seed production. The many disadvantages which attend the harvesting of cowpeas for seed are not common to the soy bean. When grown for grain alone the shattering of the pods of the soy bean is a serious fault and inexperienced growers are likely to sustain a heavy loss of seed through lack of knowledge and improper handling of the soy-bean plant. The shattering varies with the varieties of the bean. It is well, however, with most varieties to give special attention as maturity approaches to prevent serious losses from this cause.

Time of Harvesting.

In general, the best time to harvest, except where special bean harvesters are used, is when about three-fourths of the leaves have fallen and most of the pods have turned color. If cut at an earlier stage, the plants are difficult to cure properly, and the yield will be lessened materially on account of the immature grain. On the other hand, if the plants are allowed to become too ripe, the pods will shatter before being cut, and much seed will be lost. When special harvesters are used to gather the seed, the plants must reach full maturity to obtain the best results.

Methods of Harvesting.

Various methods of harvesting the crop are in use in different sections where the soy bean is grown largely for seed production. The crop may be cut with ordinary mowing machines, self-rake reapers, self-binders, or even with scythes, corn knives, or sickles. The beans also may be harvested with a special bean harvester which gathers the grain from the standing plants.

When the plants are cut before maturity, they are cured in shocks and allowed to remain in the field until a convenient time for threshing. If thoroughly dry they may be housed and threshed later.

Threshing.

Threshing may be done with an ordinary grain separator, but if this machine is used it must be altered somewhat to prevent the cracking of the beans. In some cases a special set of thin concaves is used for threshing beans and in other instances some of the concaves are removed. Good judgment on the part of the thresherman will enable him to adjust the ordinary separator so that the beans may be threshed with little splitting. Special pea and bean separators are on the market, and their use may be advisable when large acreages of the beans are to be handled. If thoroughly dry, soy beans can be threshed with a flail. If only a small acreage is to be threshed—an acre or so—this method is practicable and economical. In a few sections a corn shredder has been used to advantage in threshing beans. If properly cured and dried out, the beans shell out very readily with such a machine.

The straw obtained from threshing soy beans for seed is a valuable feed for all kinds of stock. In many sections the straw is baled at the time of threshing and sold to liverymen, dairymen, and stock feeders.

Storage of Seed.

As soy-bean seed spoils rather easily if not properly handled, care should be exercised in curing and storing. After the beans are threshed they should be watched carefully to avoid heating and molding. When thoroughly dry, there is no such danger. The best plan, perhaps, is to spread the seeds out on a floor immediately after threshing and shovel them over from time to time until they are thoroughly dry. After this they may be safely put into sacks or bins. The storeroom should be dry and with a free circulation of air. Soy-bean seed loses its viability rather rapidly, and it is not safe to hold seed for planting purposes more than two seasons. The seeds of the soy bean, unlike those of the cowpea, are rarely attacked by weevils or other grain insects.

NUBBINS OF TRUTH ON SEED-CORN SELECTION.

If you have ever been caught in the spring without a supply of corn that was fit for seed, do not be caught that way again. The best insurance is to gather your own seed at ripening time this fall when the best quality is most plentiful. Pick the seed by hand in the field, says the U. S. Department of Agriculture, from the most productive stalks.

An ear on the stalk is worth a dozen from the bin, when it comes to selecting seed corn. On a productive stalk you know its parentage; from the bin it may look good but be a worthless mongrel as far as seed value is concerned.

A bull with good beef blood is absolutely essential for success in raising baby beeves.

SOIL SAVERS IN SOUTH.

Do Not Overlook Great Value of Legumes as Cover Crops in Planting Increased Grain Acreages.

Produce more wheat and rye, but do not overlook the value to the permanent agriculture of the South of leguminous winter cover crops—crimson and bur clover and the vetches—is the advice of the United States Department of Agriculture. While the determination to plant record acreages of wheat and rye in the South is entirely commendable, specialists caution that the drain of grain crops on the land be not disregarded. The agricultural future of the South demands that the soil be maintained at maximum fertility by turning under regularly leguminous crops.

A winter cover crop is better than a summer legume, for several reasons. The latter is not often turned under, and when a crop of cowpea hay is taken from the land the stubble turned under falls far short of doing the good the soil needs. At the same time a farmer is scarcely warranted in turning under a crop representing a considerable money value which is grown during a regular crop season. A leguminous winter cover crop, on the other hand, occupies the ground at a time when cash crops can not be grown, protects the soil from washing, takes up fertility that might otherwise be leached away, and often provides winter grazing for cattle. That winter conditions in the South are very different from those where the ground freezes so as practically to prevent washing and leaching scarcely need be emphasized. Under open winters any soluble plant food is subject to rapid loss. Such loss might be largely prevented, of course, by growing winter grain crops, but if these crops are then sold off the farm the plant food merely is taken away in another manner. The farmer may be cash in pocket, but the land is poorer. If the grain crop is turned under, the land benefits some, but not nearly as much as if a legume crop had been turned under.

The Value of Turning Under Legumes.

The benefit derived from turning under a legume crop, as crimson clover, varies, of course, with soil and circumstances. In general, the evidence from experiment stations and from a host of good farmers is that a corn or cotton crop following crimson clover benefits all the way from 10 to 80 per cent. It is essential to the continued prosperity of the South that this fact be not overlooked. It will be poor policy to strain so hard after the immediate profit as to overlook the fact that an acre from which a grain crop has been taken will not yield as much corn as one on which crimson clover has been turned under and that, furthermore, the first acre has taken a step on the down grade while the second has taken one on the up grade.

Cost of Seeding Cover Crops.

It is true that the seed of winter legumes is high, but it is worth asking whether the per acre cost of seeding is really much greater than that for grains. Common rye is quoted by southern dealers at about $3 per bushel and up, while Abruzzi is offered at from $4 up. With crimson-clover seed at 20 cents per pound, 15 pounds per acre will cost the farmer the same as to sow 1 bushel of rye per acre. Oats at $1.25 to $1.50 would cost the farmer about the same as crimson clover. There is no doubt that the supply of crimson clover and of hairy vetch seed is limited, even at the high prices prevailing, but southern farmers are urged not to neglect to plant a small acreage to legumes.

Have a Crimson-Clover Seed Plat.

In the case of crimson clover especially, the department can not urge too strongly the planting of a small plat on every farm with a view to saving it for seed next year. There is good reason to believe that the importation of crimson-clover seed will be no greater next fall than it is this, and, unless the crop winterkills again, the farmers of the South should be able to make themselves pretty well independent of the foreign supply for next fall. On the basis of a yield of 5 bushels of hulled seed per acre, 1 acre left for seed will furnish enough to plant 20 acres, even if, owing to defective homemade means of harvesting, this average should not be maintained in the case of seed in the hull. There is every reason to believe that 1 acre to 10 is a low estimate, and at this rate the South could accumulate a large stock of home-grown seed in one season. The area to be planted for seed should be worked as level as possible, since this facilitates harvesting. The rotation plans for the farm should provide that late corn or millet for hay follow this clover. Cotton can not be planted after a crimson-clover seed crop is taken, but in most sections corn can follow a seed crop and the residue of the clover turned under will help the corn. Some crimson-clover seed should be saved even if there is no huller in the neighborhood. The seed in the hull can be used quite as well, if not quite as conveniently, as the hulled seed. Many farmers, in fact, prefer to use the seed in the hull, and every farmer can gather and use this.

Useful Winter Legumes.

The following winter legumes should be considered for planting this fall.

Crimson clover.—On the lighter lands of the coastal plains and on most of the soils in the northern part of the cotton belt crimson clover does well provided the land has some lime and is inoculated with the clover nodule organisms. Where lime is not too expensive, an application of one-half to one ton of ground limestone will usually pay. Inoculation is necessary. Where red, white, alsike, or crimson clover has grown the soil will be inoculated. Where these have not been recently grown artificial inoculation should be provided. Any county agent can give advice as to this process. Crimson clover should be seeded between August 1 and October 15, depending on the latitude. In Virginia and northern Tennessee seeding should take place as soon after August 1 as possible. Farther South the dates may be later. In all cases there should be plenty of time for the clover to grow 6 inches high before the advent of freezing weather. For further information send to the Department of Agriculture for Farmers' Bulletins Nos. 550, 579, and 646.

Bur clover.—This may be seeded in the southern part of the cotton belt. When the seed is sown in the bur without treatment, seeding should be made early so as to give time for the hard seeds to soften and germinate. However, this may be hastened by boiling before planting. The burs should be dipped in cold water first, then one minute in boiling water, and back into the same cold water in which they were dipped first, this last process being for the purpose of getting the burs inoculated with the nodule organism. Bur clover is especially valuable with Bermuda pasture, the combination making fine grazing for most of the year. For further information send to the Department of Agriculture for Farmers' Bulletin No. 693.

Vetches.—The common or Oregon vetch can be grown as a winter cover crop in many parts of the cotton belt, from south of Tennessee to the Gulf, and from southern North Carolina to northeastern Texas. The seed is at present much cheaper than that of the hairy vetch, being offered by some southern dealers this fall at 10 cents per pound. When sown alone, 35 to 40 pounds are needed, but sown with oats or rye a less quantity, say 25 pounds, will be enough. Hairy vetch seed is smaller and slightly less seed may be used. This seed is very high now, however, and a fair seeding is expensive. Another vetch, known in the South as Augusta or narrow-leaf vetch is very desirable. This seed, too, is less expensive than the Oregon, being offered by some dealers at 8 cents per pound. The seed is still smaller than that of hairy vetch and when sown with a bushel of oats, 15 pounds is said to be enough for an acre. Those who can get this seed may well put in a small field of it.

All vetches may be sown alone, but are better put in with oats or rye to be cut for hay. Even then some benefit will accrue to the soil, especially if the stubble be left rather high. All vetches need inoculation unless they have been successfully grown

before. For further information send to the Department of Agriculture for Farmers' Bulletin No. 529.

Alsike clover.—There are many places in the South that are too low and where the land is too heavy and lacking in lime for crimson clover. On such places sow alsike. It should make a splendid hay crop for cutting in June or late May and will also enrich the land. Alsike seed is small, and 5 pounds will seed an acre. Price, about 25 cents per pound. For further information send to the Office of Forage Crop Investigations, Department of Agriculture, for office circular on this crop.

ROTATIONS FOR WHEAT.

(*Continued from page 1.*)

Third year.—Corn and velvet beans. Beans and cornstalks pastured and turned under in early spring for cotton.

Good farm practice under boll-weevil conditions requires that the cotton stalks be plowed under as soon as the bolls are all open and picked, care being taken to cover the stalks completely in order to destroy the insects. The land should then be gone over with a roller and the wheat sown with a disk drill. Harrowing is not advisable, as it unearths the buried stalks.

When velvet beans are grown with corn, which is the common practice in much of the southern half of the cotton belt, wheat can not be sown in the standing corn; neither can the crop be removed in time for fall seeding. It is necessary then that wheat follow some other crop than corn. Fortunately, better yields of wheat can be expected following cotton than after corn.

For the northern part of the cotton belt the rotation may be as follows:

(1) Cotton, with crimson clover sown at the last cultivation and plowed under the following spring.

(2) Corn, with cowpeas sown between the rows at the last cultivation.

(3) Wheat, followed by cowpeas, followed by rye, to be turned under in the spring. The cowpeas following the wheat crop may be cut for hay, or they may be disked in or plowed under as green manure.

In tobacco-growing sections wheat may follow tobacco in the rotation.

THRIFT THOUGHT.

Don't throw away stale bread and left-over skim milk, Madam Housewife. From them you can make that simple and well-known but nourishing dish, milk toast, the United States Department of Agriculture points out. This makes a good dish for breakfast, luncheon, or supper, especially for children.

Heat the milk. Add a small quantity of butter and season to taste with salt. Pour while hot over well-toasted stale bread and serve.

SOW WINTER OATS.

Liberal Acreage Should Be Sown in South This Fall Wherever the Crop Is Adapted.

Because of the shortage of corn in some sections of the South and the more than usual need for growing at home all the feed that stock will require, a liberal acreage should be sown to winter oats this fall wherever that crop is adapted. While many farmers had a disastrous experience with oats last winter, when a large part of the crop was destroyed by the February freeze, a repetition of that occurrence this year is not very probable. Oats are generally recognized as being ordinarily the best grain crop for fall sowing in the South, as it usually yields better than other grains, matures early, and both the grain and the straw may be fed to live stock. In fact, it is a very general practice in many sections either to cut oats for hay or to feed them in the bundle to work stock, thus providing both grain and roughage.

Seed Economy.

The scarcity and high price of seed oats this fall, due to the short crop last spring, make it desirable to use special precautions to get a good stand with as little seed as possible. As less seed is needed when the seed is sown early on well-prepared land, attention to these points will pay well. Oats usually do best after a cultivated crop, such as corn or cotton. If these crops have been kept free from weeds, it is best not to plow the land but to make a fine, mellow seed bed 2 or 3 inches deep with the disk, spring-tooth, or spike-tooth harrow. The disk harrow is the best of these tools for this purpose, though the spike-tooth or smoothing harrow should be used the last time over the field to break clods left by the disk and to leave the surface fine and smooth for the seed. A good seed bed may also be made with the disk harrow on land from which a crop of cowpeas or soy-bean hay has been removed. Plowing is not usually advisable unless the land is very hard or weedy, as it leaves the ground so loose that it dries out readily. If the field must be plowed, the work should be done at least two weeks before seeding time and the land then disked or dragged thoroughly to firm it.

Fertilization.

If the land is rich or if it has been heavily fertilized for the preceding crop, no further fertilization is necessary. On most soils, however, the addition of 100 to 200 pounds of acid phosphate or some other form of phosphate fertilizer before or at seeding time is beneficial. Fertilizers containing nitrogen are usually applied to best advantage about the time growth starts in the spring.

Varieties Recommended.

In the Gulf States, Georgia, and the Carolinas, the best oat to grow is the Red Rustproof or some of its various forms, as Appler, Bancroft, Cook, Hundred Bushel, or Patterson. The Fulghum, a very popular variety in many sections, is quite similar to Red Rustproof, but has the advantage of ripening 10 days to two weeks earlier. In Arkansas, Tennessee, and Virginia the Winter Turf is the best variety to sow in the fall, as it is hardier than Red Rustproof and Fulghum.

Seeding Dates.

Winter oats should be sown in Tennessee and Virginia from September 15 to October 15, according to the locality. In the Carolinas and the northern portions of the other Southern States sow from October 1 to November 1, and in the southern half of Georgia and the Gulf States sow from October 15 to November 15. The farther north or the higher the elevation at which the seed is to be sown, the earlier should be the date of seeding.

Sowing Suggestions.

The grain drill is the best method of sowing oats. If one is not available, the seed may be sown with an ordinary cotton or corn planter or a one-horse drill. Sowing broadcast and plowing or disking in requires more seed and is a poor and uncertain method. The usual rate of seeding is 2½ to 3 bushels, but this may be reduced to 2 bushels if the seed is drilled early on well prepared land. The seed should be sown only deep enough to be sure that it is covered with moist soil, for deeper seeding delays germination and early growth. Sowing 1 to 1½ inches deep is usually sufficient.

LAMB CLUBS SHOW PROGRESS.

At Mount Juliet, Tenn., the lamb club organized there in 1893 has just sold this year's output at $16.41 a hundredweight, the sale aggregating $12,500 for the members of the club. In 1894, the first year of sales, the price received was only $2.50 a hundred. But in the 24 years it has been going it has aggregated sales of $130,500 worth of stock.

Dr. Lee Wright seems to have made the best record this year. From 88 ewes he brought 101 lambs to the scales, 94 of which were of first grade, averaging more than 55 pounds and being fat.

W. K. Tipton, the county agent, also reports that the output of the Bairds Mill lamb club brought $16.54 a hundred.

Spray in September with arsenate of lead or zinc arsenite to control the sweet-potato leaf-folder.

HOUSEWIVES HELPING.

They Are Giving the First Comprehensive Record Ever Made of the American Family's Weekly Diet.

What is said to be the first comprehensive record of the Nation's diet, from by far the largest number of individual household pantries, is now under way, through the cooperation of the American housewife. She is telling what her family has on hand on a given date, what it needs to eat for a week, and what its monthly ration is. This she is doing to help along the war emergency food survey now being conducted by the United States Department of Agriculture.

Enlist Services of 10,000.

An army of 10,000 women is enlisted in the work, and to each has been sent a letter from the department together with blanks for the inventory of food on hand and for the record of a week's total of food used by the family.

President Wilson, in approving the plans of the Secretary of Agriculture for the survey, said that "authoritative information concerning the Nation's food supply is a matter of consequence at all times and is of peculiar importance at the present moment." All who are assisting the department in making the survey are rendering valuable patriotic service. It is felt that the inventories of stocks on farms, in storages, and in retail establishments, which are also being taken at this time, will be understandable only in relation to the rate of food consumption. The interpretive figures, therefore, are being given by the women of the country, and their statements will guide the governmental agencies and the public in making plans to increase the production of certain food, to promote efficient distribution of these products, and to direct the campaigns to better conserve and use them.

What Is Listed.

The inventory is of all stocks on hand on the pantry shelves, in the storage bins, the refrigerator, or the kitchen cabinet. This is accompanied by a list of the members of the family, their ages, and occupations.

There is also a weekly record of meals served to home folks and to guests, with the kinds and quantities used. These include the foods used from the household stocks and those produced at home, from the home garden for example, as well as those purchased. Mothers are also asked to report the candy, cakes, and ice cream which are bought and eaten in addition to the regular meals. This will probably require considerable cooperation on the part of the children who have pennies to spend.

Fifty-four items are included in the records of food on hand, although it is not supposed that any family will have an entry under each one of the 54 classifications. The classifications themselves are further subdivided, as in the case of fresh meats, salted meats, bakery products, fresh vegetables, and the like, under which separate items are to be listed. For example, under fresh meat would be listed pork, veal, lamb, beef, and so on. The same classification is used under the record of food consumed in a week.

The Family Record.

In the family record the name and address of the family is given, but not for publication. Each housewife will tell whether the family lives in the city or country and will give the total family income. She then lists the members of the household by sex and age and occupation, and will tell the number of meals which they eat at home and those which they may eat away from home during the week in which the record is kept. Meals prepared at home but eaten elsewhere, such as lunches taken to work, are considered home meals. Where there are children in the family the approximate quantity of milk used daily by each of the children under 7 years of age is also recerded.

It has been stated that the only survey which is in any way equivalent to this one now being taken was made some 20 years ago on a limited scale. It has been considered the one authoritative source of such information, although standards and costs of living have advanced materially since it was taken.

WASTE IN HANDLING COTTON SEED.

An enormous amount of useless dirt and foreign matter annually is purchased and handled with cotton seed, according to investigations conducted by the United States Department of Agriculture. This trash wastes transportation, causes loss by wear on cleaning machinery, and results often in damaged seed and a lower quality of cottonseed products.

To save these wastes and losses producers, ginners, and oil mills are urged to take the following measures, which it is believed will be of mutual advantage and of benefit to the entire country.

Cotton producers will help by bringing the unginned cotton as dry and clean as possible to the gin. The ginner will aid by so equipping and adjusting his machinery as to make the seed as clean as possible, and by keeping all foreign matter from getting into the seed after it has been separated. The oil-mill interests can encourage producer and ginner to market clean seed of good quality by paying a comparatively better price for good, clean, dry seed than is offered for poor, dirty, or damp products.

TO ASSIST DEPARTMENT.

Director Ousley and President Pearson Made Assistant Secretaries—Other Special Appointments.

The President has nominated and the Senate has confirmed Mr. Clarence Ousley, Director of Agricultural Extension of Texas, and Dr. Raymond A. Pearson, President of Iowa State College of Agriculture, as Assistant Secretaries of Agriculture. Mr. Ousley took the oath of office before Assistant Secretary Carl Vrooman on August 21. Dr. Pearson is now in the West holding a series of conferences with State agricultural officials and farmers regarding increased planting this year of winter wheat and rye. He took the oath of office at Kansas City on August 22. The appointment of two additional Assistant Secretaries was provided for in the recently enacted food production measure. Assistant Secretary Ousley, among other duties, will direct the publication and informational activities of the department. Assistant Secretary Pearson primarily will assist the department in keeping in touch with State committees of food production and conservation and other State agencies, and in directing some of the activities of the department which have greatly increased in the emergency.

Dr. B. T. Galloway continues to serve as Assistant to the Secretary. He acts as the representative of the Department of Agriculture on the Interdepartmental Committee of the Council of National Defense.

Mr. Floyd R. Harrison, Washington, D. C., has been appointed Assistant to the Secretary during the present emergency. He will perform such duties as may be assigned to him from time to time by the Secretary.

Prof. William D. Hurd, Director of Extension Service in Massachusetts, has been appointed temporarily as special assistant in the office of the Secretary. He is giving attention to joint efforts by the department and the States in connection with production, conservation, and marketing of food crops.

Prof. Herbert W. Mumford, the live-stock specialist, is now associated with the Bureau of Markets as consulting specialist in live-stock marketing. Prof. Mumford will retain his position as professor of animal husbandry in the University of Illinois and chief in animal husbandry in the State experiment station.

Prof. William F. Gephart, dean of the College of Commerce and Finance, Washington University, and Prof. Charles S. Potts, assistant dean of the law school and professor of government, University of Texas, for a temporary period will assist the Bureau of Markets in attacking problems affecting the handling and distribution of agricultural food supplies.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., SEPTEMBER 19, 1917. No. 7

UNITED STATES LIVE-STOCK INDUSTRY COMMITTEE.

Resolutions Unanimously Adopted at the First Meeting of the Committee Appointed by Secretary of Agriculture and the Food Administrator.

The United States Live-Stock Industry Committee, appointed by the Secretary of Agriculture and the Food Administrator from among leading live-stock men of the country to consider ways and means to safeguard the live-stock industries and to increase production, met in Washington September 5, 6, and 7, and embodied its suggestions in the following resolutions:

Whereas, Hon. David F. Houston, Secretary of Agriculture, and Hon. Herbert C. Hoover, Food Administrator, have called us to Washington to consider certain problems of live-stock production vital to the national welfare, and have requested from us suggestions upon such problems and especially those relating to the production and marketing of live stock and live-stock products: Therefore be it

Resolved, That as a result of our conference here we submit the following statement for the consideration of those Government officials named above:

1. We are impressed with the seriousness of the war situation and of the obligation which rests upon all citizens to serve the common good. And for ourselves and for the sincerely patriotic live-stock producers whom we represent we hereby pledge to the President of the United States and to his administrative officers our loyal cooperation in carrying out such measures as they may consider necessary to the successful prosecution of this great war for world-wide democracy.

2. We approve the efforts which have been made under the leadership of the Department of Agriculture to encourage live-stock production, and we believe that in this work the department should have the liberal support of Federal and State authorities.

3. The live-stock business is no different from all other business in that it is governed by economic laws. Production in a large way increases or decreases as the cost of production and the price of the finished product rise and fall. When the margin of profit is replaced by a positive loss the length of time the live-stock producer can continue in business is measured solely by his financial condition.

4. If there has been a reduction in live stock in proportion to the needs of the country the cause must be sought in the unremunerative prices which the live-stock producer has received in recent years. A continuation of prices which are below the cost of production will intensify the shortage.

5. The live-stock producers will loyally acquiesce in whatever measures the Government may find necessary to adopt and will cheerfully and as speedily as possible adjust their business to the conditions brought about by such measures. We suggest to those who must bear the heavy burden of responsibility that while liquidation of live stock can take place very rapidly, as shown by the experience of the past year, the reestablishment of the herds and flocks is a matter of years. If, therefore, it seems desirable to hasten an increase in our live-stock production definite policies looking to that end should be adopted and made known at the earliest possible date.

Even with normal conditions the production and feeding of live stock is carried on under uncertainties which do not prevail with other kinds of business. The cost of the raw material is determined largely by the sunshine and the rain and can not be known in advance. The price of the finished product is subject to the most violent fluctuations, caused not only by rapidly changing business conditions but by a system of marketing in which the seller has no voice as to the prices which shall be paid for his finished product. Under war conditions live-stock market uncertainties are intensified and the cost of production is very greatly increased. Therefore, in the absence of reasonable assurance of prices which will cover the cost of production, a decrease in live stock seems inevitable.

6. If in the present emergency the paramount consideration is an increase in production, we feel the Government should announce and adhere to the policy that in the huge purchases of meats and other live-stock products which are to be made through a common purchasing agency of our nation and its allies such prices will be paid as shall assure the producer a reasonable margin over the cost of production, and we believe that the Government should take effective measures through the licensing power granted in the food bill to see that the large packing concerns do not, by their present control of the central markets, deprive the producer of a just profit, and that every agency of the Government should be employed to eliminate all manipulative and speculative efforts in the handling of live stock and its products; that all waste in distribution should be ascertained and stopped to the end that the consumer secures his meat supply at the lowest possible price consistent with sound economic principles. We believe that careful consideration should be given to the establishment of a definite relation between the values of hogs and corn.

7. We thoroughly indorse Mr. Hoover's efforts to prevent reprehensible speculation in food products of all kinds.

8. The work of the Department of Agriculture, based upon its study of marketing conditions, is most valuable and we urge its continuance, to the end that market abuses may be done away with and that all unnecessary expense between the producer and the consumer be eliminated.

We feel that it is most necessary that whatever methods are adopted as war measures in connection with the live-stock industry should be based on such sound economic principles as to adjust themselves readily after the war to the needs of our steadily growing population, which should be maintained as a meat-eating nation.

9. We urge upon the Food Administration and the War Department the need of conserving both the garbage and manure produced at the various cantonments. A wise use of the garbage for hog feeding will result in the production of some millions of pounds of pork from food which would otherwise go to waste. The distribution fo the manure upon lands near such cantonments will produce additional food values equivalent to from $2 to $5 per ton for all the manure so distributed.

10. We recommend that central retail markets under effective governmental control and regulation be established in the

larger cities of the country where meat and meat products may be sold to the consumer at cost from the packing house plus a reasonable percentage of profit.

11. We earnestly recommend the saving as far as practicable of heifer calves, ewes, and sows suitable for breeding purposes.

12. We urge that every possible effort should be made by the Government to stabilize conditions on the range and encourage by liberal regulations increased stock production within the national forests, the Indian reservations, and on the unappropriated public lands.

More specifically we recommend:

Beef Cattle.

(*a*) That a sufficient emergency appropriation be made by Congress to be used for the prompt selection and withdrawal of live-stock trails and watering places, as contemplated under the recently enacted 640-acre grazing homestead law.

(*b*) That an effort should be made by the proper authorities to arrange for the discount by Federal reserve banks of live-stock paper drawn for as long a period as 12 months.

(*c*) That the drought conditions in the western range country should be brought to the attention of the Interstate Commerce Commission, with the request that the commission exercise its authority to put in force a special freight rate on live stock which will permit the moving of such stock from the drought areas to districts where feed may be obtained for a time and its return. A special freight rate, properly safeguarded, would make it possible to conserve large numbers of live stock which may otherwise be sacrificed.

(*d*) Reliable daily information as to market conditions is most necessary. We therefore recommend that the Bureau of Markets of the Department of Agriculture, at the earliest possible date, arrange to furnish such information by wire to the press and to all markets, and that when such arrangements are completed the sending of unofficial reports to the daily or weekly press or to the public markets be forbidden.

(*e*) That the cattle industry in the South can be very greatly extended if danger from the cattle tick can be eliminated. We recommend that the Department of Agriculture deal with this matter as a war measure.

(*f*) That a considerable increase in the beef supply can be brought about by the encouragement of Boys' Baby Beef Clubs. And we suggest that adults be invited to join such clubs as a patriotic way of serving their country's need.

Dairy.

Resolved (*a*), That the present unsatisfactory conditions of the dairy industry has been brought about by circumstances of which the dairyman has been the victim and not the creator. The advancing price of beef animals has made many inferior dairy cows more valuable for slaughter than for dairy purposes. Milk and dairy products have not advanced in price proportionately to the advance of other food products. The cost of production has greatly increased, due both to the increased cost of foodstuffs of all kinds and the advance in the cost of labor, as well as the difficulty of securing competent help even at the advanced wage. Dairymen all over the United States have been forced to meet these conditions by marketing their less profitable cows, and this has resulted in a decrease in the total production of milk in proportion to the population.

The necessary advance in the price of milk has caused complaint among consumers who are not informed as to the legitimate causes for such advance. It is desirable that there shall be instituted a campaign of education to make plain the true food values of milk, and we recommend that in instituting such a campaign a most earnest effort be made by Government officials to secure the cooperation of the daily press. A special effort should be made to inform the public of the value of skimmed milk both for children and adults, and of the value of cottage cheese, the greater manufacture of which would save as food large quantities of skimmed milk which is now wasted.

(*b*) That purchases of dairy products by governmental agencies should be at prices which will fully cover the actual cost of production. Prices lower than these will tend further to discourage the dairy industry.

(*c*) That a very large increase in the production of milk and milk products can be brought about by a better understanding of scientific methods of feeding and of selection of high-producing cows. We therefore suggest that a strenuous effort be made to increase the number of cow-testing associations.

(*d*) That the efforts to prevent the marketing of dairy calves for meat purposes are not well directed. The average dairy farmer finds it necessary to dispose of his calves at the earliest age at which they may be used for meat purposes, because, first, his entire milk output is needed to supply his customers and is more valuable there than when fed to calves; second, because at the high prices of feedstuffs that have been prevailing it is unprofitable to carry the calves for any length of time. Restriction on the sale or slaughter of calves would reduce the milk supply.

(*e*) That the redistribution of dairy stock can best be promoted through the county agents, and we suggest that a central organization within the Department of Agriculture can best direct such distribution.

Sheep.

(*a*) Owing to not only a national but a world shortage of wool and mutton it is immediately necessary that our sheep industry should be encouraged on the western range and the small farms of the country.

(*b*) The Federal Department of Agriculture and the State agricultural colleges and experiment stations should to the greatest extent, consistent with their appropriations, extend their work of education with reference to sheep raising and wool growing, and county agents should make special efforts to guide beginners on safe lines.

(*c*) The ewe from the western ranges which is unable longer to bear range hardships but which will readily respond to the more favorable feed and care afforded by the small farm is most valuable for redistribution to the farm.

(*d*) The western range industry has been greatly reduced by the rapid passing of the public domain into the hands of private owners, and there remain practically no lands on the public domain that are fit for any other use than for the grazing of live stock. They should therefore be used for that purpose and sold or leased for grazing purposes under such governmental regulations as will develop their carrying capacity for live stock and greatly increase the production of meat and wool. We earnestly request national legislation which will effect this result.

(*e*) Congress should likewise enact legislation providing for the sale or lease as "isolated tracts" of small areas of land, not exceeding 640 acres in one tract, which are surrounded by private entries.

(*f*) The stray and useless dog is the enemy of the sheep. We approve the bill now pending in Congress to impose a Federal tax upon all dogs. We recommend that all State legislatures should enact laws protective of the sheep grower against dog depredations. We suggest that the Bureau of the Census in its plans for the Fourteenth Census provide a schedule of dogs on farms and not on farms.

(*g*) The practice of speculation in large quantities of lambs and wools should be discouraged through every agency available.

(*h*) Some sections of our country are stocked to their capacity with mother ewes from which lambs are marketed at from 70 to 80 pounds. This is the most economic method of producing mutton. What we need is more ewes producing the 70-pound lamb. We urge that every ewe lamb which promises an economic future should be saved from slaughter.

Hogs.

(*a*) Pork constitutes more than one-half of all the meat produced in the United States. Next to the dairy cow, hogs return a greater amount of human food in proportion to the amount of feed consumed than any other farm animals. High fecundity makes possible the restoration of our hog stocks with great rapidity after periods of liquidation. Pork is the mainstay of the meat ration of the laboring man and of the soldier.

(*b*) It is therefore incumbent on the Nation to increase in every practicable way the output of hogs from our farms, and at the same time conserve in every possible way stocks of grain. Not only should our output of pork be increased from the standpoint of its direct effect on the economics of farm operations but also on account of the extent to which hog raising on farms enables the farmers to produce a considerable quantity of the meat required for home use.

(*c*) The following program is recommended as the means of achieving the above results and increasing the production of pork and pork products:

1. Reduce to the minimum amount of grain required in the hog's ration by utilizing pasture and forage crops. In the present emergency pigs should be marketed at a weight not to exceed 200 pounds.

2. Extend by educational propaganda the practice of home curing of pork.

3. Extend to the utmost the organization of pig clubs under the direction of the Federal Department of Agriculture and in cooperation with the State agricultural colleges.

H. C. Wallace, *Iowa.*
Dwight B. Heard, *Arizona.*
D. D. Aitkin, *Michigan.*
N. H. Gentry, *Missouri.*
F. J. Hagenbarth, *Idaho.*
G. Howard Davison, *New York.*
S. W. Shoemaker, *Maryland.*
E. H. Ingwerson, *Illinois.*
E. K. Middleton, *Mississippi.*
Committee.

(Mr. Heard was appointed to take the place of Mr. James Callan, of Texas, who could not remain until the closing session.)

The national committee appointed five permanent industries committees to confer with the Secretary of Agriculture and the Food Administrator in regard to questions affecting the live-stock industries which may arise from time to time. The membership of these committees is as follows:

Dairymen.

M. D. Munn, Minnesota.
S. M. Shoemaker, Maryland.
G. W. French, Iowa.
R. Scoville, Connecticut.
A. L. Brockway, New York.

Sheepmen.

F. G. Hagenbarth.
J. H. Dobbin.
F. M. Rothrock, Washington.
E. A. Sawyer, Arizona.
J. M. Wilson, Wyoming.

Feeders.

W. L. Stubbs, Kansas.
J. M. Imboden.
Ed. Keefer.
E. L. Burke, Nebraska.
Heber Hord, Nebraska.

Beef raisers.

Senator J. B. Kendrick, Wyoming.
D. B. Heard, Arizona.
E. K. Middleton, Mississippi.
W. T. McCray, Indiana.
A. S. Gage, Texas.

Swine men.

H. C. Wallace, Iowa.
N. H. Gentry, Missouri.
Chas. H. Sutton.
A. J. Lovejoy, Illinois.
R. R. Russell, Texas.

KERNELS OF SEED-CORN TRUTH.

If you plant corn from stalks that have suckers, that is what you will raise. Like begets like. Select your corn seed from the stalk as it stands, so you will know its parentage.

Short, thick, storm-proof stalks with ears that grow low are the right kind for the Central and Southern States. Get your seed from such stalks because slender, top-heavy stands are likely to mean losses.

Seed ears from the best-producing stalks in the field produce more than seed ears apparently as good, but gathered without considering the productiveness of the parent stalk. The place to select seed corn is in the field, not in the crib; the time to select it is as soon as it is mature, not at husking time.

Take seed corn from the best-producing stalks as they stand thick in the field. Such seed is more likely to meet competition successfully than seed which comes from a stalk which stood alone and did not suffer from the crowding of its neighbors.

INCREASE POULTRY PRODUCTION.

An appeal to poultry raisers to increase their production of poultry, meat, and eggs has been issued by the American Association of Instructors and Investigators in Poultry Husbandry, which met recently at Amherst, Mass. These poultry experts, in a resolution, state that there will be an unprecedented demand for breeding stock and poultry products, which can be met most effectively by the introduction of approved methods and better stock and management in each flock.

The association urges particularly owners of flocks not to sacrifice valuable chickens simply because feed has become abnormally high in price. They point out that such a practice will tend to reduce the supply of breeding stock and lead to serious reduction in output.

The members of the association, who are the experts in poultry husbandry from the several State agricultural colleges and the United States Department of Agriculture, stand ready to help all poultry producers to get maximum results.

Plow in late summer or early fall land that is infested with billbugs.

COTTON EMBARGO.

Exports to Neutrals Have Little Effect on Gross Shipments—1917 Crop Less Than 1916 Takings.

The so-called embargo on cotton to neutrals should have small if any effect upon the gross movement, is the opinion of Clarence Ousley, Assistant Secretary of Agriculture, who has issued a statement on the subject, with an analysis of the statistical position showing that this year's production is considerably below last year's takings. Mr. Ousley's statement follows:

Exports to Neutrals Not Forbidden.

"It is painful to observe that there are American citizens who for gain or in prejudice would distort the truth in regard to the regulation of cotton exports to neutrals. Of course the export of cotton to neutrals is not forbidden; it is to be confined to demonstrated needs for actual consumption in order to prevent cotton from reaching our enemies, the Central Powers. Last year's exports to all countries other than France, Italy, Russia, England, Canada, and Japan were only 722,134 bales, and yet I read a statement in a newspaper a few days ago to the effect that the embargo would cut off the markets for 4,000,000 bales. As the cotton crop is now moving it is well for us to know the precise facts. Here is the latest official information concerning cotton exports for the season 1913–14 (the year before the war) and the season of 1916–17, compiled by the United States Bureau of Foreign and Domestic Commerce.

Exports of domestic cotton from the United States during the fiscal years ended June 30, 1914, and June 30, 1917.

(Bureau of Foreign and Domestic Commerce, Department of Commerce.)

Country.	Fiscal year ended June 30, 1914.	Fiscal year ended June 30, 1917.
	Bales.	*Bales.*
Europe:		
Austria-Hungary	101,786	.....
Belgium	216,825	.....
Denmark	100	.....
France	1,091,137	1,023,127
Germany	2,785,220	.....
Greece	1,650	.....
Italy	517,011	660,571
Netherlands	34,614	.....
Norway	3,600	.....
Portugal	6,323	.....
Russia in Europe	94,726	46,566
Spain	285,158	366,262
Sweden	48,609	.....
United Kingdom:		
England	3,394,241	2,793,388
Scotland	1,965	.....
Ireland	55,760	.....
Other Europe	.....	232,771
North America:		
Canada	146,992	186,819
Guatemala	1,120	.....
Mexico	31,948	5,030
Newfoundland and Labrador	9	.....
West Indies—French	10	.....

Exports of domestic cotton—Continued.

Country.	Fiscal year ended June 30, 1914.	Fiscal year ended June 30. 1917.
	Bales.	*Bales.*
South America: Venezuela	65	.....
Asia:		
China	8,757	.....
Hongkong	290	.....
Japan	336,908	514,530
Oceania: Philippine Islands	450	.....
Africa: British South Africa	26	.....
Other countries	.....	118,071
Total	9,165,300	5,947,165

"The periods covered in this table are not the periods of the commercial season which ends July 31, but they will suffice.

Present Exports and Those Before the War.

"The total exports before the war were 9,165,300; last year they were 5,947,165. Before the war exports to Germany were 2,785,220; to Austria 101,786; total, 2,887,006. The difference between the total exports the year before the war and last year is 3,218,135. It will be seen that the suspension of exports to Germany and Austria lacks comparatively little of accounting for the difference between exports now and before the war. The table shows that European neutrals last year received 599,033 bales. Where are the markets that would take 4,000,000 bales but for the embargo?

"It is interesting to observe that exports to England last year were 2,793,388 compared with 3,394,241 for the year before the war or a difference of only 600,853, while exports to Italy and Japan increased 321,182 bales. It is plain to be seen that other countries are supplying such small part of the trade as England has lost and that the substantial difference between the total exports last year and the year before the war is the lack of cotton formerly supplied to Germany and Austria and the savings or deprivations practiced generally on account of the war.

Total Exports Not Materially Decreased.

"Therefore, it is obvious that the so-called embargo on the shipment of cotton to neutrals in itself will not materially decrease the total American exports and should not appreciably affect prices this year. The question is not what we may be unable to ship to the neutrals, but what we may be able to ship to countries permitted to receive freely. As to that, the only element of doubt is the amount of tonnage available. There is nothing in the present situation to warrant the fear that the countries which received cotton last year will not receive substantially as much this year. The submarine menace has not been removed, but it seems to be diminishing in a relative sense. The latest dependable calculation shows that the net decrease of tonnage on the present building conditions will not exceed two and a half million tons a year and it is fair to assume that at the present rate of destruction of shipping cotton will be exported during 1917–18 in volume nearly, if not quite, equal to the volume of 1916–17. It is as reasonable to anticipate peace before another crop can be grown as to anticipate the complete or greatly increasing success of the submarine.

Demand for All Available Cotton.

"With the present crop of 12,499,000 bales, with a record of 7,491,086 bales taken in the United States last year, with an unprecedentedly small carry-over from 1916–17, with Liverpool and continental stocks nearly 500,000 bales less than last year, with stocks of dry goods low everywhere and a certain increase of demand in the United States due to the mobilizing of two million soldiers within 12 months and supplying them with khaki and tents, there is no reason whatever for doubt that there will be demand for all the American cotton in sight available for export. Last year American takings were 7,491,086, and last year's exports 5,947,165, making a total of 13,438,250 bales or 939,250 more than the estimated crop of this year. A 10 per cent decline in both exports and domestic consumption would not equal the difference between last year's takings and this year's crop. As already shown there is no apparent reason for a decline in either. An increase in exports is expected with any improvement in shipping facilities; only the necessities of transportation of soldiers and supplies is likely to cause a decrease, and if circumstances should cause a decrease of exports, there is likely to be a corresponding increase of American manufactures to such extent as capacity may permit, because the world must have clothing and its stocks were never so low as at present.

"From these facts it would appear that a crop of 12,500,000 or even 13,000,000 bales this year will not exceed the world's eager demand, unless some unforeseen calamity should befall.

Causes of Price Fluctuations.

"The fluctuations in price during the last few weeks have not been surprising to any disinterested student of the cotton market. The remnant of the old crop was small and was held by a few concerns, as is generally the case under such circumstances; demand had been quickened by our entry into the war and the need for quick supply of army clothing and other material; the growing crop was in low condition and shipping construction had been speeded up. Price stimulation was inevitable until the new crop began to move, and then reaction was natural. The pendulum generally swings to the extreme of speculative stimulus and back to the extreme of speculative depression. Its true poise is usually about midway between.

"The market is now affected by the usual rush to sell a new crop. A contributing actor is the greater value involved, for it requires twice as much money to finance a crop now as it required four or five years ago. Financiers are accustomed to think in terms of 10 and 12 cent cotton and can not easily bring themselves to think in terms of 20 and 25 cent cotton. They do not readily recognize ratios and relations; they are prone to consider the old basis of 7 or 8 cents as loan value; they do not visualize cotton in dry goods now selling upon a basis of 30 to 40 cents.

Changed Economic Conditions in Cotton Belt.

"On the other hand few men in the trade realize the change in economic conditions in the cotton belt. The crop mortgage is not so common as in other times. Good prices and diversification for several years have made many cotton planters their own creditors. Storage facilities have been vastly increased, though not as much as should be at the point of preferred storage, which is the gin. Farmers are more and more learning how to value cotton and are more and more relying upon their own judgment. The Department of Agriculture's service in furnishing information about crop conditions, yields, consumption, movement, grading, and marketing is putting the producers upon somewhat equal terms with traders. Until very recently the farmer merely asked the trader, 'What will you give?' More and more nowadays the trader is compelled to ask the farmers 'What will you take?' The change in attitude is interesting and significant. In cotton marketing, as in many of our commercial customs and political institutions, the old order is changed. Many influences that formerly prevailed have passed away or have lost much of their potentiality.

Summary of Situation.

"To summarize the situation, it appears that, if present conditions of war and transportation continue, the supply of cotton is well within the world's demand and the embargo will not materially affect the movement of exports. The growers of cotton being apprised of the truth of the situation and being as capable as the traders of appraising the chances against them and for them are likely to insist upon prices in keeping with the high levels of these times."

If practicable, grow field peas or buckwheat on sod land before planting it to corn, in order to lessen the damage due to wireworms.

An important piece of fall work is to destroy dried wild bunch grasses and broom sedge, which furnish winter quarters for the chinch bug.

MEAT SUPPLY SITUATION.

Secretary of Agriculture Addresses Live-Stock Men—Shortage of Food Animals Serious Problem.

In opening the conference of the United States Live Stock Industry Committee held in Washington September 5, 6, and 7, to consider ways and means for bettering conditions in the live-stock industries and increasing production, Secretary Houston said, in part:

"You know the situation with which we are confronted. We should have needed to give increasing attention to the meat supply if no war had broken out. Seventeen years ago there were about 192,000,000 cattle, milch cows, sheep, and hogs in the Nation; to-day there are about 179,500,000, or about 12,500,000 fewer than 17 years ago. And yet in that period this country has gained a nation. It has added to its population 26,000,000—three-quarters of that of France. Obviously the problem of increasing the supply of meat is one of the utmost concern. It is one of the three or four big tasks in the field of agriculture to which I have persistently directed attention during the last four years. But in this particular emergency it is immensely intensified. You know something of the conditions abroad. You know what war means in respect to the wastage of materials of every sort, and especially in respect to the wastage of animals—of food animals, of draft animals. I do not know that it is possible—I suppose it is impossible—to get accurate estimates; but from all the indications we can get it is clear that the decrease of food animals can be measured only by tens of millions. You know also how difficult it will be to restore former conditions, to rebuild the foundations of the live-stock industries abroad. Some of you remember the conditions in the South after the Civil War and recall how long it took the South to get approximately where it was before the war.

"The live-stock men of this Nation have an enormous problem to solve—enormous if it were limited to the supply of meat for the increasing population of this Nation. But your task is much bigger. You are going to be called upon increasingly to furnish meat products to Europe, and also breeding animals. In this emergency, I have no doubt, you have been confronted with unusual situations. One of our thoughts in calling you here was to have you reveal to us what is in your minds, to picture to us your difficulties, and to see if we could not in cooperation arrive at some sound conclusion and develop a constructive program which would not only assist the Nation and your industries in this very troubled period, increase the meat supply of the Nation, bring relief to our own consumers and those of the nations with which we are cooperating, but also lay foundations which will make for orderly and constructive development after the war.

"The Department of Agriculture is especially concerned with problems of production, of conservation of farm and animal products and materials, and of marketing. The Food Administration is peculiarly concerned with the food supply of the Nation. It is impossible to draw any hard and fast line between their activities, and the two agencies obviously must work in very close contact and cooperation.

"One of the problems in which both the Food Administration and the Department are concerned is that of distributing—the possibility of distributing—surplus stock from sections of the country in which there may be a shortage of feedstuffs to sections of the country in which there is a greater abundance of feedstuffs and a shortage of live stock. Many sections of the United States are understocked. The average farm in Iowa has about 108 or 110 head of poultry; the average farm in North Carolina, South Carolina, and Alabama, on the other hand, has between 17 and 20. The average farm in Iowa has about 35 hogs; the average farm in North Carolina and Alabama, about 5; in South Carolina, about 4. The average farm in Iowa has 6 milch cows; the average farm in North Carolina and Alabama less than 2; South Carolina, 1. Deficits in proportion appear in other States of the Union. There is no sound reason for a continuance of this state of things. Many of the understocked States of the Union have peculiarly favorable conditions for live-stock development; and I am glad to say that some of these, especially in the South, have recognized the fact and are making marked headway. Since 1913 or 1914, there has been a tendency toward the increase of live stock in the Nation, except sheep; and this increase has appeared very conspicuously in the South following the eradication of the cattle tick and the development of an active interest among farmers and business men."

BUY LABELED FIELD-CROP SEED.

Buy labeled seeds, is a suggestion of the United States Department of Agriculture. In the case of field and forage crop seeds, including cereals, corn, cowpeas, and soy beans, the label securely placed on the sack or container should convey the following information:

(1) Name of seedsman.

(2) Kind of seed.

(3) Proportion of pure, live seed present with month and year of germination test.

(4) Country or locality of origin in the case of the following imported seeds: Beans, soy beans, Turkestan alfalfa, and red clover from southern Europe and Chile.

Following conferences with the department the Wholesale Grass Seed Dealers' Association and the American Seed Trade Association at their conventions this summer approved furnishing the above information with all lots of field seeds of 10 pounds or over. Later 77 seedsmen including most of the larger dealers have individually agreed to adopt this plan. Under this agreement the seed trade voluntarily agrees to furnish the information stated above with all field seeds they sell, including those sold in interstate commerce and in the 21 States having no laws regulating such sale. Seed so labeled may always be seeded at the proper rate to give a good stand under normal conditions.

$14,550,000 FOR ROADS.

Apportionment Announced for Fiscal Year Ending June 30, 1919.

The Secretary of Agriculture has announced the apportionment of $14,550,000 of Federal funds to be used in the fiscal year ending June 30, 1919, by the several States in the construction and maintenance of rural post roads, as follows:

State.	Sum apportioned.	State.	Sum apportioned.
Ala.	$313,456.47	Nev.	193,229.82
Ariz.	205,540.58	N. H.	62,610.11
Ark.	250,018.47	N. J.	177,357.22
Cal.	456,167.23	N. Mex.	238,634.55
Colo.	257,278.92	N. Y.	749,674.20
Conn.	92,216.45	N. C.	342,556.47
Del.	24,411.99	N. Dak.	229,585.91
Fla.	170,723.88	Ohio	558,043.42
Ga.	403,900.45	Okla.	346,489.34
Idaho	182,471.55	Oreg.	236,332.74
Ill.	658,323.48	Pa.	690,145.78
Ind.	406,230.18	R. I.	34,972.38
Iowa	434,653.61	S. C.	215,014.08
Kans.	429,131.88	S. Dak.	243,175.61
Ky.	292,984.62	Tenn.	340,663.51
La.	203,755.29	Tex.	876,986.70
Me.	144,807.42	Utah	170,763.17
Md.	130,871.43	Vt.	68,128.92
Mass.	221,261.85	Va.	298,120.77
Mich.	435,356.37	Wash.	216,530.19
Minn.	425,865.40	W. Va.	159,713.89
Miss.	268,751.60	Wis.	382,707.20
Mo.	508,603.98	Wyo.	183,805.78
Mont.	298,520.89		
Nebr.	319,445.25	Total.	14,550,000.00

This is the third apportionment under the act, $4,850,000 having been apportioned for the fiscal year ending June 30, 1917, and $9,700,000 for the fiscal year ending June 30, 1918.

Only those ewe lambs that can not be used for breeding should be sent to market for slaughter.

Pastures furnish excellent feed for the brood sow and her litter, but should be supplemented with enough grain to prevent the sow from losing weight.

SEED WHEAT WARNING.

Farmers Cautioned Against Extravagant Claims of Seed Promoters—Home-Grown Seed is Best.

A warning to American farmers not to be misled, in their zeal for increased wheat production, into planting abnormally high-priced seed for which extravagant claims are made, has just been issued by the United States Department of Agriculture.

"Wheat is attracting, at the present time, greater attention than perhaps ever before, owing to its comparative scarcity and high price and the necessity of sowing a large acreage this fall," says the department statement. "As might be expected, therefore, various persons are offering to the public varieties that they describe as far superior to the kinds now being grown. These varieties are usually given some catchy name and extravagant claims are made for them.

Example of Exploitation.

"An example of this kind is the Alaska, or Seven-headed wheat that was exploited a few years ago. The backers of this wheat did not get very far with it, however, as the Post Office Department issued a fraud order and their business came to a standstill. This type of wheat having a large, branched head has been offered at high prices to the people of this country many times under one name or another. Records concerning it go back more than a hundred years. Just now another exploitation is threatening under the name 'Titanic.' This type of wheat with branched heads should be left strictly alone by the farmers of the country.

"A favorite scheme employed by those having wheat for sale for which they wish to obtain exorbitant prices is to claim that their variety requires but a small amount of seed per acre. A peck of seed, 20 pounds, and a half bushel per acre, are amounts frequently mentioned. Of course the claims of maximum yields from these small seedings are not substantiated by fact. Only on dry lands or under very special conditions is the seeding of as little as even 45 pounds per acre of wheat advisable. On nearly all of the wheat lands of the country it is more profitable to sow from a bushel to two bushels of seed per acre than to sow less than a bushel.

Rules to Be Followed.

"The United States Department of Agriculture has shown in previous publications that the claims of maximum yields obtained from sowing one or two pecks to the acre of the wheat known as Stoner, Miracle, or Marvelous are not substantiated by experiments. Safe rules to follow in the case of all wheats for which such claims are made are first to sow as much as has been found profitable with other varieties in the neighborhood, and second, *not to pay high prices for the seed.*

"Radical claims of high yields are made for some varieties of wheat. It is not uncommon in advertising a new variety for an unscrupulous or uninformed promoter to claim yields four or five times that of the average yield of the country. Claims as high as 15 or more times the average yield have been made in special cases. Such claims are absurd and no one need be misled by them. A well-bred variety in the section to which it is adapted may yield a few bushels more than the varieties being commonly grown. Very seldom, indeed, can a doubling of the yield be expected.

Buy Seed Grown as Near Home as Possible.

"Buying seed grown at a great distance from home is another thing that wheat growers should be on their guard against. No wheat grown and bred for California conditions, for instance, no matter how good for California, has been found adapted to the country east of the Rockies. California adapted wheats do not succeed east of that State. Neither would the wheats adapted to the Atlantic coast or the Mississippi Valley succeed in California. In short, home-grown seed should be used unless the State agricultural experiment station or the United States Department of Agriculture advises otherwise."

CATTLE TICK VOTED OUT.

Farmers of Harris County, Tex., at Recent Election Decide to Make Dipping Compulsory.

Cattle ticks must leave Harris County, Tex. The voters of that county have so decided at a recent election. The law, which passed by a safe majority, provides for a compulsory dipping of cattle throughout the county. It means that Harris County will not have to wait until 1922, when the State compulsory dipping law is effective in that section, to be tick free. This is the second southeast Texas county to anticipate the State law, Jefferson County having voted for tick eradication some time ago.

Example for Other Southern Counties.

In discussing the action of the Texas counties, officials of the Bureau of Animal Industry of the United States Department of Agriculture said the step taken by Harris and Jefferson might well be followed by other counties of the South that are still in the "red" or tick-infested territory. Department officials commend the work of the Young Men's Business League, of Houston, which took a leading part on the side of tick eradication in the recent election in Harris County. Farmers' organizations and farmers of the county who had tried and proved the effectiveness of dipping also aided greatly in overcoming opposition. Meetings were held, and city voters, as well as farmers, were made to appreciate the necessity of freeing the county of cattle ticks. Testimonials from farmers, published widely throughout the county, were a strong argument for eradication. Opposition was bound to diminish before such statements as these:

Results from Dipping.

"After dipping my cattle in an arsenical bath, as described by the United States Bureau of Animal Industry, and getting the ticks off them," testified a Harris County dairyman, "they increased in milk yield 1 quart per cow per day, or a total daily increase of 34 quarts, which meant an increased daily revenue of $3.40."

Another dairyman said: "We find that our milk cows are giving about twice as much milk and butter now than before we began dipping."

"I want to say," wrote another farmer, "that I have been using the arsenical solution prescribed by the United States Bureau of Animal Industry and find that it gives entire satisfaction. I have dipped my stock four times this season aud they are free from ticks."

The farmers of one community in the county united in this contribution to the literature of the campaign:

"We, the people of this community, have dipped our cattle the first time and are very well pleased with the results. We have had none of the bad results we were told we would have. Our cows look better and give more milk. We are all well pleased and are solid for tick eradication."

County-wide dipping in Harris and Jefferson Counties under the supervision of State and Federal inspectors will begin as soon as equipment can be made ready, it was said. There are only about 45 dipping vats in Harris County at present, according to the Federal inspector in charge at Houston, and it is estimated that about 100 more will be necessary.

FREED FROM TICK QUARANTINE.

The counties of Alcorn, Quitman, and Wilkinson, and a portion of Pontotoc County, Miss., and a portion of Surry County, Va., were released from quarantiue on account of cattle-fever tick on September 1, according to an order signed by the Secretary of Agriculture. The area released amounts to 1,788 square miles.

The work of eradication is progressing very rapidly and those in charge expect to be able to release a large additional territory before the end of the year.

GROWING WINTER WHEAT

Soil Moisture at Seeding Time Is the Most Important Factor for Success on the Great Plains.

In the campaign for increased wheat production, the United States Department of Agriculture is calling particular attention to the desirability of winter wheat in the Great Plains region, yet advises against planting when a lack of soil moisture at seeding time is practically certain to mean no crop. Under such circumstances it may be better to wait and sow spring wheat. The production of winter wheat under dry-farming conditions, says the department, is likely to be stimulated in the Great Plains area by present and prospective prices and by plans now under way to increase the crop as a patriotic effort to meet the necessities of war conditions. The soils of the plains are generally rich; fertilizers are not used and this makes agriculture in this section independent of the war-time fertilizer situation.

Why Winter Wheat.

Winter wheat is recommended for the region for several reasons. In the first place, it is naturally adapted to an extensive agriculture, in which large machinery can be used to advantage and a minimum of man labor can be made to cover a maximum acreage. In the second place winter wheat shows a closer relation between yield and water content of the soil at seeding time than any other crop. Under dry-farming conditions, in a normal soil, winter wheat can use water from a depth of 6 or more feet. If the soil at seeding time is wet to as great a depth as 3 feet, the department advises sowing as great an acreage as possible. Conditions are favorable for germination and growth, and the chances for a crop are good, even though the winter and spring rainfall may be below the average. On the other hand, seeding in a dry soil means that the rainfall and all other climatic conditions must be much better than normal if a crop is to be produced.

Bulletin on the Subject.

Brief suggestions for winter-wheat growing under dry-farming conditions are given in Farmers' Bulletin 895, "Growing Winter Wheat on the Great Plains," which will be sent free on application to the United States Department of Agriculture. These suggestions are based on extensive experiments in the Great Plains States. The bulletin discusses varieties, the rate and time of seeding, the place of winter wheat in the agriculture of the region, and cultural methods for each of the nine dry-farming States of the Great Plains region. The results of these experiments will be treated more comprehensively in a department bulletin to be published shortly.

DISCOUNT AGAINST WHEAT.

Department Investigating Partly Arbitrary Practice by Grain Dealers.

It has been brought to the attention of the United States Department of Agriculture from several sources that, in certain parts of the country where this year's crop of wheat is now being moved, the country grain dealers are assessing the farmers a discount against all wheat purchased, contending that such assessment is mandatory by reason of the official grain standards of the United States for wheat under the United States Grain Standards Act. Apparently the contention on the part of the country grain dealers is based upon the item "dockage" contained in the official standards. From information received by the department it appears, however, that the discount is actually an arbitrary assessment in the interest of the buyers, and is neither on the basis of the official standards nor required or contemplated by the act or the regulations thereunder.

Purpose of Grain Standards.

The primary purpose in the establishment of the official grain standards of the United States was to provide a basis whereby parties to transactions involving the purchase and sale of grain shipped or delivered for shipment in interstate or foreign commerce might, through being able to obtain a correct application of such standards, arrive at the actual value and make settlement accordingly. The standards for wheat do not provide for any arbitrary assessment for dockage. They do provide for the determination of the amount of sand, dirt, weed seeds, weed stems, and certain other matter called dockage, which actually may be present in a lot of wheat, the amount of which, if in excess of one-half of 1 per cent by weight is to be stated in terms of the actual percentage as a part of the grade designation of the wheat. This is called the dockage system of grading and has been in use for many years in the Northwestern States prior to the adoption of the official standards.

The transactions in question appear to be purely local, not involving interstate commerce, and are perhaps conducted in a way not within the prohibitions of the act. Nevertheless, the department is investigating the matter and will be glad to have any facts which may be of value. It will do everything in its power to bring about the discontinuance of misrepresentation based on the act or the standards thereunder.

CHARBON OR ANTHRAX.

Method of Simultaneous Treatment Prepares the Way for Gradual Elimination of the Disease.

Reports that have been received recently by the Department of Agriculture indicate that the losses from charbon or anthrax during the present season will reach or exceed the maximum amount lost in any previous year. The control of the disease is difficult but not impossible, according to the experts of the Bureau of Animal Industry.

In certain sections of the country, notably the overflowed bottom lands of the South, anthrax is one of the most destructive maladies to which cattle and horses are subject. With the cattle tick it forms one of the great drawbacks to stock raising over wide areas which are otherwise excellently adapted to the industry.

Anthrax Can Be Controlled.

But, like the cattle tick again, anthrax can be controlled readily. By the simultaneous injection of antianthrax vaccine and serum, a method similar in principle to that employed in the control of hog cholera, animals are rendered immune to the contagion. The systematic use in anthrax-infected regions of this simultaneous method should confine the disease to ever-narrowing limits until ultimately the danger of widespread outbreaks is past and the germ ceases to be a serious menace, just as smallpox has ceased to scourge civilized communities. With the eradication of anthrax among animals will go its danger to man as well.

The chief obstacle to the attainment of this goal is the difficulty that is always experienced in securing the rapid and general adoptoin of measures to which people are not accustomed. The efficacy of the simultaneous treatment in rendering cattle immune to anthrax is now as well established as the efficacy of arsenical baths in ridding them of ticks, but this fact has yet to be demonstrated in practical object lessons to the great bulk of stock raisers in the infected districts. Earlier work with antianthrax vaccine in a less perfected form has also created a certain prejudice which must be overcome before the value of the new treatment is universally recognized.

Simultaneous Treatment Is Improvement.

The simultaneous treatment recently perfected represents a great advance in the control of the disease. In this method a carefully standardized spore vaccine is injected into one side of the animal and at the same time the protecting serum into the other. In this way a more immediate and a more pro-

tracted immunity is secured than by the use of either the vaccine or the serum alone. It is also now possible for the first time to standardize the dose—that is, to estimate exactly the strength of the injection of the vaccine. Furthermore this vaccine prepared from the spores of the germs instead of from the germs themselves, retains its effectiveness for a much longer period of time than the earlier vaccine.

Cost of Treatment Is Small.

The general adoption of this method, it is now believed, should result in the gradual elimination of anthrax. The requisite serum and vaccine can be manufactured and sold according to the information now available, at a cost of approximately 50 cents per animal which will put the remedy at the disposal of every stock owner in the infected regions, enabling him to have his stock treated for the prevention of the disease. However, when the animal becomes affected with charbon, such large quantities of serum alone, without the spore vaccine, must be used as a curative dose, that the price for curing an animal may reach from $3 to as high as $10. It will therefore be seen that economy demands the preventive treatment of the exposed animals rather than the curative treatment of those which become ill. The spores are unusually resistant to many of the common disinfectants; they are not affected by ordinary weather conditions, and they are capable of persisting in the ground, in infected pastures, for example, for many years. If, however, they are prevented from multiplying in the bodies of diseased animals, ultimately they must disappear.

All carcasses dead of charbon should be burned, or buried and covered with lime. Infected stables and premises should be thoroughly disinfected.

NEW FARMERS' BULLETINS.

Classification of American Upland Cotton. (No. 802.)

Organization, Financing, and Administration of Drainage Districts. (No. 815.)

How to Select Foods. (3) Foods Rich in Protein. (No. 824.)

The Boll-Weevil Problem, with Special Reference to Means of Reducing Damage. (No. 848.)

Home Uses for Muscadine Grapes. (No. 859.)

Utilization of Farm Wastes in Feeding Live Stock. (No. 873.)

Home Storage of Vegetables. (No. 879.)

Preservation of Vegetables by Fermentation and Salting. (No. 881.)

Wheat Growing in the Southeastern States. (No. 885.)

Drainage is beneficial to land infested with certain kinds of wireworms.

CORN SUBSTITUTES.

Farmers Can Reduce Amount of High-Priced Grain Fed to Hogs by Using Other Feeds.

Farmers can reduce the amount of corn fed to hogs by substituting other feeds for corn. This is especially desirable with high-priced corn and its increased need for human consumption. Pastures and forage crops properly used can reduce the corn and other concentrated feeds fed to hogs from one-half to one-fourth. There are, moreover, many feedstuffs which can be substituted for the other portion of corn. Their use will be determined largely by their availability, relative feeding value, and cost per pound as compared with corn. Hog feeders, by getting in touch with the feed-manufacturing industries in their section, may discover profitable substitutes for corn. Feeds unavailable for human consumption should be used as far as possible.

Feeding Values and Relative Costs.

A number of substitutes for corn with suggestions for their use are given below. The feeding value, methods of feeding, and the highest relative cost of a pound of each feed to a pound of corn at which profitable substitution can occur are given for each feed. For example: A pound of feed with a feeding value four-fifths that of corn must cost at least one-fifth less before substitution is profitable purely from a monetary standpoint.

Oats after crushing have three-fifths the feeding value of corn. They can be substituted profitably for corn, therefore, when a pound of crushed oats costs two-fifths less than a pound of corn. In a fattening ration, oats should not compose more than two-thirds of the ration during the early part of the feeding period and should gradually be reduced until, during the last 4 or 5 weeks, they are entirely omitted from the ration. Oats are excellent for adding bulk to a ration and are especially good for brood sows.

Barley when crushed is an excellent feed for swine and can be substituted entirely for corn, even when it costs the same per pound.

Rye when costing nine-tenths as much as corn per pound can be substituted for corn in the ration. It should be fed ground or crushed and is best fed as a slop.

Frosted wheat or wheat damaged in other ways and unfit for milling can be substituted even when equal in cost to corn per pound. Wheat should be ground, crushed, or soaked.

Emmer or spelt is a bulky grain. It can be substituted for corn when costing three-tenths less per pound. A partial substitution is best. This feed should always be ground and is best when fed as a part of the ration along with concentrated heavy meals to give bulk to the ration. A combination of corn and emmer proves far superior to emmer alone.

The grain sorghums, kafir, milo, and feterita may be substituted for corn when slightly lower in price per pound. They should be ground and fed as a meal.

Buckwheat can be substituted for corn when it costs one-tenth less per pound. It should be fed ground and is best as a partial substitute, for it tends to produce a poor quality of fat.

Millet can be substituted for corn when one-fourth cheaper per pound. Millet should be ground and fed always with a rich protein supplement. For fattening hogs in cold weather it is not so good and produces a soft pork.

Cull beans can be substituted for corn if below the cost of corn. Beans make soft pork and always should be cooked and salted before feeding. It is better to substitute the beans for but one-half the corn and so prevent soft pork and increase the gains.

Hominy feed or meal is a by-product from the manufacture of hominy grits for human consumption. It is excellent for hogs and can be substituted for corn even when one and one-seventh the price of corn per pound.

Wheat shorts or middlings are a by-product of the milling of wheat. While a feed high in protein, it can be substituted for corn when one and one-tenth the cost of corn. It is best as a nitrogenous supplemental feed and when forming but a part of the ration. Owing to its heavy, pasty nature, if fed alone for a long while digestive troubles are liable to occur. No protein supplement is necessary for a ration of shorts, though lime, in which shorts are low, should be supplied.

Rice polish is a by-product of the rice mills. It is excellent for swine and can be substituted even when costing one-fourth more per pound than corn. Owing to its heaviness it should be soaked 12 to 24 hours before feeding to avoid scouring. Hogs kept on rice meal for a long while tend to go off feed. Skim milk as a supplement prevents this and also increases the gains.

Rice bran is another by-product of the rice mills. It can be substituted for corn when one-tenth cheaper per pound than corn. Being bulky and higher in protein, slower gains are made than with corn, though no protein supplement is needed. It can not be fed through the summer owing to rancidity and weevils.

Barley feed obtained in the manufacture of pearl barley and barley flour has about the same feeding value as a mixture of wheat bran and shorts and can be substituted for corn meal when costing the same. No protein supplement is needed. It is rather bulky and generally used as a protein supplement when usual prices exist.

Pea meal can be substituted for corn when costing one-twelfth more than corn. It

needs no protein supplement, but, owing to its close nature, should be fed with a bulkier feed. It is best used as a partial substitute. A fine quality of pork is produced by pea meal.

Broom-corn waste or the tops of broom corn can be fed profitably to hogs and have about the same feeding value as millet.

Weed seeds from grain elevators can be substituted for two-thirds of the corn in a ration. They should be ground and cooked before feeding.

Cracker wastes can be substituted as one-half the grain ration. They can be fed dry or moist, but, owing to their saltiness, the hogs require more water. They are constipating and should be fed with oil meal or bran when in a dry lot while green forage crops will counteract their costiveness during the grazing season.

Bakery wastes and ice-cream cone wastes can be substituted for corn when available at reasonable prices.

Garbage is well utilized by swine. Care must be used in feeding to remove soap, washing powders, glass, etc., which may kill the pigs.

Blackstrap molasses when two-fifths cheaper per pound, can be substituted as one-third of the corn in a ration. Its usual value commonly will prohibit such substitution.

Other Wastes and By-Products.

There are many wastes and by-products from other industries, such as canning factories, which are of feeding value to swine. It should be remembered that, with bulky by-product feeds such as distillery grains, brewers' grains, and pea-cannery refuse, the hog, owing to his digestive system, can not utilize these as well as cattle and sheep.

When the prices of corn and of nitrogenous by-product feeds such as bran, peanut meal, soy-bean meal, velvet-bean meal, linseed-oil meal, tankage, fish meal, etc., are relatively close, a larger amount of these concentrates high in feeding value can be fed and partially substituted for corn. This will naturally increase the percentage of protein in the ration.

WHEAT INCREASE WARRANTED.

One farmer in Harnette County, N. C., who has just threshed his wheat crop, got 14 bushels to the acre without the use of commercial fertilizer by turning pea vines under last year. Another used soda and grew 26 bushels to the acre, while a third, with especially good land and extra preparation, made 36 bushels to the acre. Such a yield at this time, when the cry is for wheat, means 8 barrels of flour from each acre besides the other wheat products from the same material. For this reason George A. Cole, the county agent, is urging an increase in the wheat acreage.

DATE OF FIRST FROST.

Gardeners May Learn Probable Date of Killing Temperatures from Weather Bureau Records.

Truckers and gardners planning for late crops should be aided in determining their "best bets" on the first frost by referring to this historical summary of frost occurrences in various sections, recently issued by the United States Weather Bureau:

Killing frost has never occurred earlier than September 10 south of the extreme southwestern portion of South Dakota, extreme southern Minnesota, central Wisconsin, and the interior northern portion of lower Michigan. It has never occurred earlier than October 1 south of the extreme north portions of Oklahoma and Arkansas, southern Tennessee, and the mountain districts of North Carolina and Virginia. It has never occurred earlier than October 20 to the southward of the extreme northeastern portion of Texas, northern Louisiana, the central portions of Mississippi, Alabama, Georgia, South Carolina, and eastern North Carolina.

Chances of Frost Before September 15.

The chances are even that killing frost will not occur before September 15 in most of North Dakota, Montana, and the extreme northern portion of Minnesota. By the first few days in October killing frost occurs on the average one year in two as far south as the southern portion of Nebraska, southern and eastern Iowa, southern Wisconsin, most of the interior portion of lower Michigan, and throughout the greater part of New England. By October 15 it may be expected in at least half the years as far south as the central portions of Kansas, Missouri, Illinois, Indiana, throughout eastern Kentucky and the mountainous sections of the Virginias.

There is one chance in two that killing frost will not occur earlier than November 1 at the latitude of central Oklahoma, central Arkansas, and the northern portions of Mississippi, Alabama, Georgia, South Carolina, and eastern North Carolina. The chances are even that it will occur by November 15 a little south of the central portions of Texas and Louisiana and well toward the southern portions of Mississippi, Alabama, and Georgia. This does not mean that killing frost will occur in the localities and on the dates specified every other year, but that in the long run it occurs, as indicated, in half the years.

Moon Has No Influence on Frost.

There prevails in some sections a popular belief that in the season when frost may be expected its occurrence is largely influenced by the phase of the moon or other periodical phenomena. Careful tabulation of frost data and its comparison with moon phases fails to disclose any such relation. All persons interested are therefore cautioned to watch, not the moon, but the forecasts issued by the Weather Bureau.

PROTECT THE DEER.

Department Urges Protection as a Means of Increasing Meat Supply.

While 15 States will have no big-game hunting this year because deer have been exterminated or because the stock has been so reduced that the season is closed, there are 33 other States, according to the United States Department of Agriculture, which will have an open season for deer hunting. This season ranges from four days in New Jersey and six days in Massachusetts and Vermont to two months or more in some of the Southern States. These seasons will open in August in Oregon and in most parts of California; in September in the rest of California and in Idaho, South Carolina, and Virginia; in October in Maine, New Hampshire, New York, Georgia, Montana, Wyoming, Washington, Nevada, Arizona, and New Mexico; in November in Michigan, Minnesota, Wisconsin, and several of the Southern States; and in December in Pennsylvania. In about one-third of the States the law allows the hunter one deer a year, and in most others two.

The Department of Agriculture urges all persons to cooperate to secure the best possible protection of deer so as to get the maximum amount of venison as a source of meat. It is estimated that about 80,000 deer are killed legally in the United States each year. These produce nearly 10,000,000 pounds of venison. The Biological Survey of the department says that this number of deer can be very largely increased, since only two or three States produce more than 10,000 deer a year and many less than 1,000. When 1,100 deer are obtained in a State as densely populated as Massachusetts, it should not be difficult, says the department, to increase the total in the other States by at least 25 per cent. Every pound of venison brought in from the woods should be made to save a pound of beef, mutton, or pork raised on ranch or farm.

The cooperation of game commissioners, conservation associations, and other organizations is requested by the department as an aid in securing accurate reports of the number of deer killed in each State this year. Such reports should prove of value for comparison with the returns from other years and may tell whether the number of deer annually taken in any State may be increased without impairing the breeding stock.

FEED COST OF EGGS.

What Records at Government Poultry Farm Show for Leghorn and General-Purpose Breeds.

The cost of feed for producing eggs with pullets and yearling hens both from Leghorns and from general-purpose breeds, in the experiments on the United States Department of Agriculture farm, Beltsville, Md., during the past year, even with the high price of grains, has been considerably lower than the price received for near-by fresh eggs.

Leghorn Pullets.

Leghorn pullets ate an average of 4.8 pounds of feed in producing a dozen eggs. The feed costs on an average 12.9 cents per dozen eggs produced by the flock. The cost of feed per dozen eggs varied from 9.2 cents in July to 41.4 cents in November, when, during the molting season, the flock continued to eat but of course produced fewest eggs. The number of pounds and the cost of the feed consumed per dozen eggs for each four-week period during the year were as follows, beginning December 1: Pounds of feed: 5.3, 6.6, 5.4, 4.7, 3.3, 3, 3, 3.2, 4.9, 4.8, 8.6, 10.9, and 18.4; cost of feed: 12, 16.4, 13.7, 13.5, 10.3, 10, 10, 10, 9.2, 9.2, 16.8, 22.4, and 41.4 cents.

Leghorn yearling hens ate on an average 5.5 pounds of feed per dozen eggs produced. The average cost of feed per dozen eggs produced by the flock was 14 cents. The cost of feed per dozen eggs varied from 7.3 cents in July to 266.3 ($2.663) in November (molting period). The number of pounds and the cost of the feed consumed per dozen eggs produced by the flock for each four-week period beginning December 1 were as follows: Pounds of feed: 20.3, 10, 5.8, 5.1, 3.6, 3.3, 3.3, 3.4, 3.9, 5.3, 7.1, 30.8, and 118.7; cost of feed: 45.9, 24.8, 14.7, 14.7, 11.1, 11, 11, 10.6, 7.3, 10.1, 13.9, 64.3, and 266.3 cents.

General-Purpose Breeds.

The general-purpose breeds ate considerably more feed than the Leghorns, the pullets consuming an average of 6.7 pounds of feed and the yearling hens 9.6 pounds in the production of a dozen eggs. The feed cost averaged 16.75 cents per dozen eggs for the pullets, varying from 11.7 to 28.9 cents; and for the yearlings averaged 24.5 cents, ranging from 13.9 to 81.3 cents. The number of pounds and the cost of the feed consumed by the pullets in producing a dozen eggs for each four-week period beginning November 1 were as follows: Pounds of feed: 10.9, 7.4, 10.9, 5.5, 5.8, 4.6, 4.4, 4.7, 4.7, 6.3, 6.9, 9.2, and 14.1; cost of feed: 24.4, 16.8, 27.1, 14, 16.6, 14.3, 14.7, 15.6, 14.7, 11.7, 13.2, 17.9, and 28.9.

For the general-purpose yearling hens the amounts per dozen eggs were as follows: Pounds of feed: 34.6, 32.9, 32.7, 12.6, 8.5, 5.7, 5.3, 6.1, 6.4, 7.5, 7.6, 10, and 21; cost of feed: 77.7, 74.5, 81.3, 32, 24.5, 17.7, 17.7, 20.3, 20, 13.9, 14.5, 19.5, and 43.1 cents.

The average cost of the mash and of the scratch mixture per 100 pounds for each month, beginning in July, 1916, was as follows: Mash: $1.82, $1.85, $1.88, $2.02, $2.19, $2.24, $2.33, $2.42, $2.70, $2.96, $2.98, and $2.84; scratch mixture: $1.90, $1.98, $2.03, $2.09, $2.30, $2.29, $2.64, $2.66, $3.05, $3.25, $3.68, and $3.41. The cost of the feed used in producing eggs can be figured from the amount of feed required to make a dozen eggs at different periods throughout the year, or feed prices may be compared with those used in this work.

EXPLAINS WAREHOUSE ACT.

How Storages May Be Licensed Under the Law Just Passed.

Letters have been sent to warehousemen all over the country by the Bureau of Markets, United States Department of Agriculture, explaining the purposes of the warehouse act of August 11, 1917, and asking if the warehouses would care to become licensed under the act.

The purpose of the act, as explained by the department, is to establish a form of warehouse receipt that will be readily negotiable as delivery orders or collateral for loans, and therefore of definite help in financing. By licensing and bonding warehousemen storing cotton, grain, flaxseed, tobacco, and wool the act aims to insure the integrity of their receipts and to make these receipts reliable evidence of the condition, quality, quantity, and ownership of the products. Thus, if a farmer takes his product to a licensed warehouse the receipt for his crop there stored becomes at once negotiable paper, without his having to wait for returns until the crop is actually sold, or without forcing him to sell at once to obtain funds needed for farm operations.

It has been pointed out that the act is permissive in its nature and warehousemen will be licensed only upon their application. In order to become licensed the warehouse must be a suitable place for the storage of the product named in the application, the warehouseman must agree to abide by the terms of the act and the rules and regulations promulgated thereunder, and he must give bond to the United States to secure his obligations as a warehouseman.

The findings on food values of the United States Department of Agriculture are widely used in Great Britain's blue books dealing with emergency rationing.

PROTEIN FOODS.

Suggestions for a Rational Basis for Selecting the Foods Needed to Build the Body.

Since protein is one of the most important food elements which the body needs and in most forms is expensive, housewives should take particular care in the selection of foods rich in protein in order that they may provide this substance in their diet economically, say specialists of the United States Department of Agriculture. The principles underlying the choice of such foods are discussed in Farmers' Bulletin 824, "Foods Rich in Protein," recently published by the department. Protein, the bulletin points out, is the only form in which the very important element nitrogen is furnished to the human body. The substance is absolutely necessary for the building and repair of body tissues.

Foods Rich in Protein.

The best known foods rich in protein include meats, fish, eggs, milk, cheese, legumes, nuts, etc. The proteins of the different foods vary somewhat in character. It does not make much difference from which materials older persons get their supply of protein, though a variety of kinds usually is considered desirable. In the case of children, however, milk is the very best source of protein.

Housewives may solve the problem of furnishing the needed protein of the diet economically, says the bulletin, by learning how much protein is provided by the different kinds of food and then choosing the kinds which will furnish what the family needs for comparatively low cost and with little waste. For the assistance of housewives in making such comparisons, tables giving the amount of the protein in a pound of various protein-rich foods, and also the percentages of protein in the different foods are included in the bulletin.

Relation of Protein to Health.

In discussing the relation of the protein food consumed to bodily health, the bulletin points out that healthy persons should not make the mistake of assuming that it is necessary to measure their food as carefully as a doctor measures his medicines or even the food which he prescribes for an invalid. If the body is in good condition it adapts itself to the ordinary variations in its food supply. The danger comes when, day in and day out, the body gets too much or too little food, or when the kinds provided are not the most suitable. While there is no need to measure exactly how much protein is obtained with every meal, if the diet as a whole is to be healthful and economical the

person who plans it ought to know in a general way how much protein and other nutrients are needed and how much is contained in the different food materials, and then choose accordingly. The bulletin contains recipes for the preparation of economical dishes rich in protein.

TOMATO PASTE.

Tomato paste, which is very convenient for making tomato soup, tomato sauce for meat, for use in preparing rice, macaroni, etc., with tomato, and for general seasoning in cooking, can be made at home according to the following directions prepared by the United States Department of Agriculture:

1 quart thick strained tomato pulp.
1 slice onion (2 inches in diameter).
1 tablespoon mixed spices.
½ teaspoon salt.
1 teaspoon sugar.
1 teaspoon paprika or 4 teaspoons sweet red pepper pulp.

Have the tomato pulp concentrated to the thickness of ketchup before measuring. Tie spice in cheesecloth and cook with tomato pulp in a pan over boiling water for about three hours. The pulp should be cooked until much of the moisture is evaporated and the paste thick enough to hold the shape of spoon when tested by dipping out a spoonful of it.

Mix one tablespoon of spices about as follows:

¼ teaspoon mustard seed.
½ teaspoon cloves.
½ teaspoon cinnamon.
½ teaspoon crushed celery seed.
½ bay leaf.
1 sprig mace.
¼ teaspoon whole black pepper.

USE FRUIT PULP.

Refuse from Jelly Making Makes a Delicious Confection.

Don't throw away the pulp left in the jelly bags after the clear juice has drained out, says the United States Department of Agriculture. Federal laws prohibit the use of this substance for commercial purposes, because it might masquerade as a whole-fruit product. It is wholesome, however, and there is no reason why it should not be put to family use. One of the most satisfactory products that can be made from fruit pulp is fruit paste.

Fruit Paste.

This is a type of confection or dessert and may be made from apricot, quince, gooseberry, apple, cherry, plum, kumquat, guava, and other fruits. For apricots, gooseberries, and other acid fruits use 1 pound of powdered sugar to 1 pound of fruit pulp; for quince use three-fourths pound powdered sugar to each pound of pulp, and for apples one-half pound powdered sugar for each pound of fruit pulp. If desired, pulp from several kinds of fruits may be mixed. If acid fruits predominate in this mixture, use approximately 1 pound of sugar to 1 pound of fruit mixture; if sweet fruits predominate, use less sugar.

Rub the pulp through a purée strainer and weigh it. Add the sugar, put the mixture over a slow fire, and cook until very thick, so that when a spoon has been passed through it the mass does not run together immediately. Pour the paste in a half-inch layer on flat dishes, marble, or glass slabs which have been rubbed with a cloth dipped in a good salad oil. Expose the dishes to draft for a couple of days and then cut the paste into figures. If the paste is well boiled down, it is dried more easily. The paste also can be cut with a common knife or with a fluted vegetable knife, or it can be cut in round cakes, the center of which is again cut with a smaller circular cutter. There will thus be both rings and small, round cakes.

Place the cut fruit paste on paper and sprinkle with crystallized sugar or common granulated sugar. Allow it to stand again a couple of days exposed to draft, dip in crystallized sugar, and pack in a tin or wooden box lined with parchment paper and with layers of the same paper placed between the layers of paste. The paste can be kept thus and served as dessert or as garnishing on creams and custards, frozen creams, large cakes, etc.

EAT COTTAGE CHEESE—SAVE MEAT.

There is skim milk on every farm where cows are kept.

Skim milk is easily made into cottage cheese. A gallon makes 1½ pounds.

Cottage cheese is one of the best substitutes for meat, not only because of its food value but also because from it dishes can be made which fit into our meals as meat does.

There are more than 5,000,000 farms which keep dairy cows. A pound of cottage cheese each week made on each of these farms and used in place of meat would mean a quarter of a billion pounds more meat available each year for emergency uses.

If there is only a little skim milk, make cottage cheese from it and use it at home. Many farmers have skim milk enough to make cottage cheese for home use and to supply families in near-by towns. The United States Department of Agriculture urges that the cottage-cheese maker and the cottage-cheese user get together.

Cottage cheese can be used alone in salads, as cottage-cheese loaf, and in many other attractive dishes.

Turn waste skim milk into a valuable meat substitute.

USE MUSCADINE GRAPES.

Jellies, Sirups, Juices, Catsups, Etc., Can Be Made with Little Sugar from This Wasted Crop.

If the people down in the southeastern United States knew what excellent grape juices, jellies, sirups, catsups, preserves, marmalades, and jams are being thrown away—potentially—in the annual waste of Muscadine grapes, which grow so plentifully in that region, they would save more of this fruit for food and drink.

Muscadine grapes were not being used widely in making home products, specialists of the United States Department of Agriculture decided a few years ago, because the people had not time to learn the possibilities of using this crop except in the fresh state or for wine making. Accordingly, some experiments were begun to find out if these grapes had possibilities for home use.

A representative was sent into the Muscadine grape country to investigate. The investigator did not take his laboratory outfit along, but established himself in a typical farm kitchen at the branch experiment station of the North Carolina Department of Agriculture at Willard. The work was carried on simultaneously with other kitchen work on a wood-burning range with ordinary kitchen utensils. Results were sought which would be applicable to farm-home conditions.

That these grapes can be prepared in many attractive and appetizing ways without the use of large quantities of sugar, and are therefore within the means of all families, was learned by the specialist. Unfermented grape juice, jellies, canned grapes, sirups, and catsups probably are the most desirable home products, taking into consideration quality, expense, and the labor required in their preparation. Preserves, marmalades, and jams require larger quantities of sugar and are more difficult to prepare, while the larger percentage of sugar they contain hardens the skin somewhat even when the best methods of preparation are used.

How to make the many palatable products, what varieties are best for different purposes, the utensils and inexpensive equipment needed, all are discussed in 23 interesting pages comprising Farmers' Bulletin 859, "Common Uses for Muscadine Grapes," which has just been published. Every housewife in the Muscadine region should have a copy of this publication. It will be sent free on request.

A 20,000,000-bushel buckwheat crop is forecast in August—plenty of buckwheat cakes in sight to take the place of wheat cakes and biscuits.

HOME-GROWN SEED IS THE SUREST AND BEST

SELECT SEED CORN

ENOUGH FOR TWO YEARS

FOR 1918 PLANTINGS AND TO INSURE ADAPTED SEED FOR 1919

START RIGHT—NOW!

WHERE?

In the field from standing stalks of a variety that has "made good" and become locally adapted.

WHEN?

As soon as ears are ripe and hard—before heavy frosts or autumn rains injure the kernels for seed. The day the ears are selected they should be hung where they will become thoroughly dry in a few days.

HOW?

Pick best ears from plants showing best yields in fair competition with neighboring plants. Storm-proof plants with hanging ears give best seed. Long ears with large, uniform kernels are the best. Avoid sappy ears heavy with water.

WHY?

It pays. Field selection of seed corn is one of the surest and best paying operations on the farm. Proper care of seed corn pays well. Tests show that properly cared for seed corn has yielded eighteen bushels more per acre than crib-stored seed from the same field.

INSURE A RIGHT START FOR YOUR NEXT TWO CORN CROPS BY SAVING AMPLE SEED NOW

FOR FURTHER INFORMATION ASK YOUR COUNTY AGENT, OR WRITE FOR FARMERS' BULLETIN 415, "SEED CORN"

U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., SEPTEMBER 26, 1917. No. 8

STORING VEGETABLES.

Methods Recommended for Natural Storage of Garden Products for Home Use Next Winter.

Natural storage of late vegetables in the home for use in fall and winter—a practice which is advisable every season—is especially desirable now that the country is at war, says the United States Department of Agriculture. Natural storage is the least troublesome way of keeping food for future use, it is pointed out, and may be practiced with little expense in most homes, either in the country or in the city. Such storage is of chief value to owners of home gardens, but when vegetables suitable for storage may be purchased cheaply it may be practiced profitably by some other householders.

Vegetables That Can Be Stored.

The principal vegetables which may be stored successfully are the root, tuber, and bulb crops, such as late-maturing potatoes, carrots, parsnips, turnips, salsify, onions, etc. Certain leaf and stalk crops such as cabbage and celery, and a few other products such as squashes, pumpkins, etc., also may be stored naturally.

Natural storage of most vegetables that may be kept may be in a cellar under a dwelling, or under an outbuilding, in a special outdoor cellar, or in banks or pits. A few products such as pumpkins and winter squash, requiring dry, fairly warm storage, may be kept in unused rooms or closets, and a few products may be kept in attics.

Cellar Storage Room.

If a cellar under a dwelling or outbuilding is clean, cool, and well-ventilated, it may be used for storage without alteration. Many cellars, however, are not well suited for storing vegetables because of poor insulation or lack of ventilation, and those containing a furnace for heating usually are too warm and dry. It is often possible to partition off a room either in one corner or at one end of such a cellar, where the temperature may be controlled by means of outside windows.

Outdoor Storage Cellars.

Outdoor storage cellars possess all the advantages of the storage room in the basement and are superior in many respects. It is possible to keep such a cellar cool and quickly reduce the temperature of the stored products by opening the door during the night and closing it in the morning before the air becomes warm. In regions of mild winters the outdoor cellars may be constructed almost entirely above ground of wood or other available materials. Straw or dirt may be thrown upon the roof as insulation during especially cold periods. In regions of severe freezing the most popular type of storage cellar is built largely underground and the roof has a deep covering of straw and earth, manure, etc. Such cellars may be constructed of wood, concrete, stone, or brick.

Storage in Pits or Banks.

Storage in outdoor banks or pits is the most primitive and least expensive method

(*Continued on page 3.*)

WILL NOT SEIZE HOME FOOD.

There is no truth in a widely circulated statement that the Government expects to take food supplies from any family. Both the Food Administration and the Department of Agriculture join in a statement to counteract what seems to be a deliberate propaganda to the effect that the Government intends to take from every family all canned goods put up in excess of 100 quarts.

This is only one of the variations of the rumor, which has been widely circulated. Another statement is that the Government has been urging the canning, drying, and preserving of fruits and vegetables so that they will be in a convenient form for the Government to handle and transport when it takes them away from the people. Further elaboration is that these goods are to be taken from the American homes and shipped to England.

SPECIFIC INSTANCE CITED.

In one instance a motorist stopped at a farmhouse to fill the radiator of his automobile. In the course of conversation he casually inquired whether the farmer's family was canning all the surplus fruits and vegetables in order to help conserve the food supply. He was informed that the farmer was not doing this because the Government intended to take all the canned goods away except a small part of it actually needed by the family itself.

The authorities state emphatically that no such course has ever been contemplated by the Government. On the contrary, both the Department of Agriculture and the Food Administration are strongly urging housewives to can and preserve, especially at this time, all surplus fruits and vegetables in order that the households themselves may have a cheap and plentiful supply of food.

SAVE VEGETABLE SEED.

Methods by Which Owners of Gardens May Assure Themselves of a Seed Supply Next Spring.

Owners of gardens can avoid difficulties next spring by saving their own seed now, says the United States Department of Agriculture. In normal times, it is pointed out, it is more satisfactory to depend upon the supplies of commercial seedsmen collected by specialists. With the present seed shortage and high prices, however, it is well worth while for the home gardener, truck gardener, and farmer to save some at least of the seed which he will need for next year's plantings. Though requiring care and close attention, the saving of seeds is a simple enough process and should be found practicable in most communities. The matter is discussed and detailed suggestions for handling the various vegetables are given in Farmers' Bulletin 884, "Saving Vegetable Seeds for the Home and Market Garden," just published by the United States Department of Agriculture.

Select Healthy Plants.

The gardener will find the least difficulty in saving the seeds of annual plants which mature in one season. The collection of seeds from the biennials which require two seasons to reach maturity, is somewhat more complicated, but is still practicable for the gardener. The most important first step in the collection of vegetable seed is the selection of the plants from which the seeds are to be saved. The sturdiest and healthiest plants should be selected, and if the seeds are borne in fruit, only the soundest and most perfect fruits should be chosen. It is well to tie a strip of cloth or a tag about the plants or fruits selected in order that they may not be harvested for food purposes or disturbed in other ways.

Beans, Peas, and Corn.

Beans, peas, and corn are perhaps the simplest seeds to collect since the seeds themselves constitute food and are considerably advanced in maturity before they are harvested for food purposes. It is possible, in the cases of these plants, simply to pass over in harvesting the pods or ears which most nearly meet requirements for seed purposes and to permit them to mature entirely. With peas and beans, it is well

to pull up the entire plants when maturity has been reached. This should be done in the early morning to avoid shattering and the plants should be spread in an airy, dry place until the seed is quite hard. After shelling, the seed are spread out for drying before they are stored. Ears of corn for seed use should be selected by stripping down the husk to examine the grain. The husks of the selected ears should be carefully folded back and held in place by an elastic band or a string. After the mature ears are gathered they should be spread out thinly on a staging to cnre and may then be stored without shelling.

Melons, Tomatoes, etc.

Seeds from vegetables, the fruits of which are eaten, are collected according to their habits of growth. Winter squash, muskmelon, and watermelon seed are taken from the ripe fruits when they are opened for use. This is true also of the seed of eggplant. Cucumbers and summer squashes are ordinarily eaten before they reach maturity, and the fruits from which seed are to be saved mnst, of course, be permitted to remain on the vines until they are ripe. Tomato seed must be separated from the pulp in a special way. The fruit, somewhat riper than when used for food, may be crushed, folded into coarse muslin or strong cheese cloth and worked energetically with the fingers under water. The pulp is thus forced through the cloth and the clean seeds are left. If the seed is to be saved in large quantities the crushed fruit may be allowed to ferment for about four days in a cask or bncket of water, with frequent stirring of the mass. The seed will sink to the bottom and the pulp will rise to the surface, from which it can be poured. The seeds of peppers and okra can be taken from fruits allowed to mature fully on the plant.

Lettuce, Mustard, and Radishes.

Strong, vigorous lettuce plants may be left from the harvest and allowed to go to seed. As the seeding plants develop it may be necessary, with some of the harder heading sorts, to cut or pull the head leaves apart carefully in order to allow the seed heads to push through. When the first seed heads open so that there is danger from loss by shattering, pull the plants and put them roots up in paper bags. Hang in a dry place until the seed is fully ripened. In the case of mustard it is nnnecessary to pull the plants. When the plants turn yellowish the plants should be cut early in the morning and put on paper or cloth under shelter.

The early radish is the only annual root vegetable which will mature seeds in one season and only those planted in the very early spring can be depended upon to do so. Do not select the first plants which shoot to seed, since these usnally are inferior. Select some of the finest roots and cut off most of the top, leaving a few small central leaves. Lay these plants in a moist, airy place overnight to harden and carefully set them ont with the crown about an inch below the surface. When the seeds in these plants ripen, cut the seed stalks and lay them on a sheet exposed to the sun, to harden.

"Shall we be more tender with our dollars than with the lives of our sons?"
W. G. McADOO,
Secretary of the Treasury.

SAVE YOUR MONEY TO BUY A U. S. GOVERNMENT BOND OF THE

SECOND LIBERTY LOAN OF 1917

TO HELP YOUR COUNTRY AND YOURSELF

Saving Seed from Biennials.

In saving seed from biennials the selected plants must be kept dormant through the winter and set out very early in the spring. Seed stalks usually will form fairly early in the season and a crop will mature in early summer. Protect spinach plants through the winter with a covering of straw in latitudes north of Philadelphia. If covering is nsed, it should be removed in the spring. Plants from which seed are to be saved should be set fairly close together since cross-pollination is necessary. Kale, collards, cabbage, and kohl-rabi are other biennials the plants of which must be kept through winter if seed is to be secured. Kale and collards are very hardy and may be left out all winter. Kohl-rabi plants should be carried through the cold weather in trenches or cold frames. This is true also of cabbage. Cabbage plants must be set in groups since cross-pollination is essential.

Onions, Parsnips, and Salsify.

Onion seed may be produced by planting mature bulbs in early spring. Parsnips and salsify roots may be safely left in the garden through the winter. Early in the spring they should be dug and the best roots immediately reset from 3 to 5 feet apart. These plants will produce seed early in the summer. The parsnip can be left in place until the seed crop is fully ripe, but the heads of salsify open out as they ripen, and unless gathered in, the seed will be blown away. It is necessary, therefore, to gather the open heads about noon on a sunny day and place them in a sunny place to dry, when the seed can be rubbed out, winnowed, and stored.

Special Plantings.

In the case of beets, carrots, turnips, and late radish, seed can rarely be grown satisfactorily from the large, hard roots taken from the spring planting. For saving seed it is best to make special plantings in midsummer, taking pains to protect plants from early frost and to store them before severe cold weather. The roots may be kept dormant in pits or cold cellars. Select the roots which are to be planted for seed, remove the tops without injuring the central bud and cure by exposing in the shade for a few days. Then bury, covering lightly at first and to an increasing depth as the weather becomes colder. Set in the spring as early as the ground can be worked. Carefully protect from frost. As the seed stalks grow support them by stakes. Turnips must be harvested as soon as the pods turn yellow, being cut in the early morning to avoid shattering. The seed stalks should be laid on papers in a protected place. Beets, carrots, and late radish may have the seeds left on the plant until ripe, when the plant can be cut and dried under shelter. The problem of threshing and cleaning these three kinds of seed is more difficult than with most seed. The pods of plants and the seed bearing branches of beets and carrots may be placed in a strong bag and rubbed until the seed is free.

General Directions.

In general, all seed should be carefully cured and dried before it is stored. After curing and drying, in most cases threshing will be necessary. Seeds should then be cleaned of all trash by winnowing, and stored. Cloth bags are the best containers for large seeds, such as peas, beans, corn, etc. They should be used also for the larger quantities of small seeds. For smaller lots paper envelopes will be satisfactory.

In every case the seed should be carefully labelled. It should be stored in a dry, well-ventilated room. Usually cellars are too moist and attics are too hot, but a second-story room furnishes an ideal protection. Seed can be protected from mice by storing in tin boxes or monse-proof wooden boxes or by suspending in cloth bags.

Are you wondering how you can use that left-over fish, Madam Housewife?

Here is one suggestion made by the United States Department of Agriculture:

Scalloped Fish and Hominy.

Place in a baking dish alternate layers of boiled or steamed hominy (hulled corn) seasoned to taste, and minced fish with thickened milk sauce. Have a layer of fish on top and sprinkle over it bread crumbs. Place in oven to heat thoroughly and brown the top.

Rice, macaroni, or potatoes may be used in this recipe in the place of hominy.

MARKETING GRAIN.

Bulletin Discusses Management of a Country Elevator and Other Related Questions.

There are many more factors entering into the proper management of a country elevator than appear upon a cursory examination of the subject. The business is attended by many hazards, which, in the opinion of specialists of the United States Department of Agriculture, should be carefully weighed in advance by those contemplating engaging in it.

This advice is contained in a recent publication of the department, Bulletin 558, "Marketing Grain at Country Points." The bulletin, which contains much information of interest to producers, shippers, dealers, and consumers of grain and grain products throughout the United States, reports the results of a survey of grain-handling methods in the States of the Middle West.

Grain Should Be Cleaned.

Pointing out a common fallacy of buying, the Government investigators declare that the producer of high-quality grain often receives less than it is worth in order that the buyer may pay an equal price to a grower of grain of inferior quality. If the farmer would clean his grain he could not only demand top prices, but would thereby obtain screenings worth $10 to $25 a ton for feed. The specialists believe that farmers who deliver grain of inferior quality should not expect to receive a price equal to that paid for high-quality grain.

In some sections of the country many elevators are open only during the harvest season. The Government investigators believe that, prices and other factors being equal, farmers should encourage elevators which remain open and provide a local market throughout the year.

Function of the Middleman.

The middleman, the experts say, may serve a double purpose. Under the present methods of distribution he may find the most favorable outlet for the producer and secure for the buyer grain of the quality he desires. But it is also pointed out that in its course from the producer to the consumer grain may be passed through the hands of so many persons who may be called middlemen that their efforts may become a burden and add needlessly to the cost of marketing.

Speaking of the storage of grain on the farm, the specialists have found that to determine whether such practice would be profitable, it is necessary to consider the interest on the investment, interest on the grain in store, natural shrinkage and loss by rodents, convenience of marketing, condition of roads at time of delivery, price at harvest time, and the probable price at some future date. In the past the natural shrinkage in corn has been so great as to show little profit from storage, while if a long-time average is taken into consideration, oats and wheat have been stored at a profit.

STORING VEGETABLES.

(*Continued from page 1.*)

of keeping many vegetables and is fairly satisfactory where the ground is well drained. This method does not compare in convenience, however, with storage in cellars since in periods of bad weather the vegetables are often accessible with difficulty. The construction of banks is begun by making an excavation 6 or 8 inches deep in a well-drained location and lining it with straw, leaves, or similar material. The vegetables (usually root crops) are placed on this litter in a conical pile. The sides and top are then covered with straw and leaves and this with 2 or 3 inches of earth. As winter approaches the earth covering should be increased, depending on the severity of the winter in the locality. Small pits containing but a few bushels of vegetables will receive sufficient ventilation if the straw between the vegetables and the earth covering is allowed to extend through the latter to the top of the pile. This exposed straw should be covered with a board or a piece of tin held in place by a stone as a protection from rain. In larger pits ventilation may be secured by placing two or three pieces of rough boards or stakes up through the center of the pile of vegetables so that a flue is formed. This flue should be capped by an inverted trough formed by two pieces of board nailed together at right angles. Where such banks are used the best practice is to construct a number of small ones so that a sufficient quantity of vegetables to last a few days can be obtained by opening each pit. The method may be modified by placing the vegetables in a long ridge rather than in conical piles with earth dividing the ridge into small sections. A section may then be conveniently opened without disturbing the remainder of the stored vegetables.

When to Store Vegetables.

Most vegetables suitable for storage should not be harvested and stored until cool weather arrives or about the time of the first killing frost. However, Irish potatoes should be harvested as soon as they reach maturity, and if basement or outdoor cellar storage is available, they should be stored immediately. They should not be stored in banks or pits until the weather gets cool. Onions should be put into storage as soon as they are matured and thoroughly cured or dried.

Detailed directions for preparing the several types of storages and for handling the various vegetables which may be stored are given in Farmers' Bulletin 879 "Home Storage of Vegetables," recently published by the United States Department of Agriculture. Copies of this bulletin may be obtained free by application to the United States Department of Agriculture, Washington, D. C.

TO STUDY FOOD SHIPMENTS.

Ways of Handling Produce to Avoid Loss in Transit from Weather Conditions.

To determine the best ways of shipping, handling, and transporting food products to avoid injury from unfavorable temperatures or other injurious weather conditions, the United States Weather Bureau recently has solicited the help of persons engaged in such work in compiling a manual of protective methods. The Weather Bureau specialists believe that the best experience of those engaged in handling products in shipment, if made available in bulletin form, would help to avoid much of the destruction and injury to food in transportation.

What Information Is Desired.

Information is desired as to the best type of containers for various products; the methods of handling and packing; the most efficient types of cars for use during hot and cold weather; devices for cooling, heating, and ventilating the same, and special precautions to be taken with particular classes of goods; roundhousing methods or other housing of cars to secure additional protection en route or at terminals; railroad inspection of perishables and cars, and accuracy of thermometers used; kinds of heaters and advantages and disadvantages; icing requirements and regulations; protective value of wrapping paper; acceptance regulations as to low or high temperature limits; best form of waybill to secure attention en route and at terminals; salvage or restoration processes; protective methods to and from depots or cars on track; and suggestions as to Weather Bureau service to meet the requirements of shipper, merchant, and carrier.

A publication similar to the one now contemplated, issued several years ago by the Weather Bureau, had a wide demand. Changing conditions have necessitated the revision of this publication.

If the water ordinarily used in cooking cereals is replaced with skim milk, the cooked food will contain about four times as much protein, a valuable body-building material, and will be just as good a food in other respects.

KEEP SEED CORN SAFE.

How to Store Next Year's Supply—Must Be Kept Dry and Away from Rodents and Insects.

Seed corn may be left on the racks where the ears have been dried. But it is generally preferable, says the United States Department of Agriculture, to store the ears in mouse-proof barrels, boxes, or crates during the winter. In any case they must not be exposed to dampness or they will absorb moisture and be injured.

After hanging in the drying shed, or lying on the racks where there is constant circulation of dry air for the first two months after they have been selected from the stalks in the field, the seed ears should be bone dry and contain less than 10 per cent of moisture. Some farmers place the thoroughly dry ears in the center of a wheat bin and then fill the bin with loose, dry wheat.

Destroy Weevils and Grain Moths.

If signs of weevils or grain moths show, the corn should be inclosed with carbon bisulphid in a practically air-tight room, bin, box, or barrel for 48 hours. The liquid bisulphid should be placed in shallow dishes on top of the box or barrel holding 10 bushels or less. The fumes from the bisulphid are heavier than air and gradually fall to the bottom of the receptacle, permeating the whole mass. One pound of the carbon bisulphid is enough for a room or bin 10 feet in each dimension. After fumigation the ears must be thoroughly aired, whereupon the unpleasant odor disappears. Great care should be used with carbon bisulphid; its fumes are quite as inflammable as those from gasoline.

To prevent the entrance of weevils and moths, the ears may be stored in comparatively air-tight boxes or barrels with 1 pound of moth balls or naphthalene for each bushel of corn, which is not injured. Ten pounds will protect enough seed to plant 60 acres.

SHEEP DESTROY WEEDS.

Perform This Service Practically Without Cost to the Farmer.

Sheep will pay for their keep as weed destroyers alone, says the United States Department of Agriculture, which just announces the result of a study lately completed in New England.

One of the fields of the Morgan Horse Farm in Vermont, maintained by the Bureau of Animal Industry of the department, largely for the purpose of keeping up a supply of good horses for the Army, was infestedwith the weed known as paintbrush, Indian paintbrush, or devil's paintbrush. This weed has recently come into northern Vermont, and it is said that some farms have been ruined by it. It is now common throughout the Northeast. It throws up a tall, slender flower stalk, but the damage is done by the leaves, which are spread from the crown and form a dense mat on the surface of the ground, eventually killing out all other vegetation.

On the Morgan Horse Farm an area of about 2 acres was fenced off. This area had some bad patches of paintbrush. The grass and weeds were mowed and 45 dry ewes placed in the inclosure the first week in July. In two weeks' time the sheep had eaten almost every leaf of paintbrush in sight. They seemed to prefer the paintbrush leaves to anything else; at any rate, they would search out isolated plants in the grass, and the patches which were covered with paintbrush are now almost bare. The cleanest field in the Morgan Horse Farm is the one which has been used as a sheep pasture for several years, and which, when the farm was bought, was as badly infested with weeds as any.

This experience indicates that even if wool and meat only meet expenses, a flock of sheep can be kept for the labor saved in keeping the farm clear of weeds. It is doubtful, says the department, whether any other farm animal has so wide a field of usefulness as the sheep when intelligently handled. Sheep produce meat at a less cost of grain than any other animal. They pay their way with the wool they yield and they exterminate noxious weeds practically without cost.

COUNTY AGENTS COUNT.

The right sort of a county agent is what his title implies—the trusted agent, friend, and counselor of the farmers with whom he works. He is not an outsider with quantities of advice, but a sympathetic helper of his own people, learning by doing.

Folks in some shiftless communities are said to exist by taking in one another's washing; thrifty communities, with a county agent leader, become more thrifty by going to school to each other and learning the best methods of all.

The demonstrations fostered by an able county agent lead to community ideals, community spirit, and community teamwork.

Home sanitation, home water supply, sewage disposal, abatement of the fly nuisance, vegetable gardening, home canning, improvement of the home grounds, betterment of cooking and sewing, and food conservation are all parts of the work which women home demonstration agents can help do.

The country church, supported by a few families, has been known to grow and prosper under the influence of the community spirit generated through an active, earnest county agent.

CONTROL OF WILD OATS.

Specialist Describes Methods, by Sections, for Eradicating Most Serious Weed in Spring Wheat.

Wild oats, the worst weed pest in the hard spring-wheat area, can be controlled by rotating crops and by efficient tillage methods. As the eradication methods differ according to the soil and climatic conditions, a specialist of the United States Department of Agriculture, in a new publication, describing the control of this pest, Farmers' Bulletin 833, divides the hard spring-wheat area of North Dakota, South Dakota, and Minnesota into three general divisions and suggests methods for each.

Sections Where Pest Is Prevalent.

These divisions are the Red River Valley division, which includes western Minnesota and eastern North Dakota; the western division, which consists primarily of western North Dakota; and the southern division, composed largely of eastern South Dakota and southwestern Minnesota.

The principle of eradication in all the methods suggested by the Government specialist is to cause the seeds of the wild oat to germinate and then to destroy the seedlings before they mature. The methods advocated for each section described in detail in the bulletin, may be stated here only briefly. For convenience the methods are numbered and in some sections a combination of several methods sometimes may be desirable, the specialist says.

Methods of Eradication.

Method No. 1.—Summer fallow or pasture—This method consists in allowing infested land to lie fallow during the summer and by plowing and pasturing to destroy the successive growths of wild oats as they germinate from seeds brought near the surface.

Method No. 2.—Winter rye—The land should be plowed in the fall and seeded to winter rye using an early-maturing variety. The rye will mature and can be harvested the following spring before the wild-oat seeds are sufficiently mature to germinate. The field then should be plowed or the stubble pastured during the rest of the season.

Method No. 3.—Meadow—Throughout the Red River Valley where heavy soils predominate wild-oat seed will not live in the ground more than two years. The common practice, therefore, for destroying the weed there, is to seed the land to some crop for hay such as alfalfa, or timothy and clover, and after two or three years the wild oats will be entirely eradicated.

Method No. 4.—Intertilled crops—Wherever rotations which include intertilled

crops can be practiced it is a comparatively simple matter to keep this weed under control. The intertillage hastens the germination of the seeds which are left in the soil, and additional tillage kills the young seedlings.

Method No. 5.—Early barley—Plow in the autumn to a depth of 3 inches and prepare a good seed bed by harrowing. Harrow again in the early spring in order to promote the germination of the wild oats. After they have germinated they should be plowed under 5 or 6 inches deep and a good seed bed prepared. Plant immediately an early-maturing variety of barley. This crop not only matures early but produces a very dense growth, which has a tendency to smother weeds. After the barley is harvested the land should be plowed and pastured in order to eradicate any surviving oat plants.

Method No. 6.—Barley and rye—Plow the land shallow (3 inches) in the fall. Early the following spring disk or harrow and seed to barley or oats. Harvest this crop for hay while the wild-oat plants are still green. Then plow the land 5 or 6 inches deep, and in August seed to winter rye. The following summer, after the rye is harvested, plow the land shallow. Late the next spring after the volunteer rye and wild oats have come up, plow again 5 or 6 inches deep and seed to barley. The barley may be harvested for grain before the wild-oat seeds are sufficiently matured to germinate.

Which Methods to Apply.

In the Red River Valley division, where the soil is a heavy clay and moisture is plentiful, it is probable that the most desirable method to use is No. 3. In the southern division, where the growing season and climatic conditions are more favorable for the production of corn, it is likely that method No. 4 will be found most practicable. In this area the seasons are not so severe as in the areas farther north and winter rye is a more profitable crop. Method No. 2 also may be found effective. In the western division, where the soil is more sandy and the rainfall lighter, methods Nos. 1 and 5 will be most effective, though methods Nos. 2 and 3 may prove to be valuable.

The bulletin, now ready for distribution, also describes the damage done by the wild oat, tells how to identify the plant, and gives suggestions as to how to avoid infestation of fields.

The housekeeper should be sure that her family has every day some food from each of the five principal groups, namely, fats, sugars, cereals, fruits and vegetables, and meat, milk, cheese, eggs, or legumes.

GUARD AGAINST FROST.

Weather Bureau Tells How to Protect Garden Stuff Before and After First Killing Temperatures.

Don't watch the moon for signs of the first frost; watch the Weather Bureau. And when the warning from the forecaster comes, as it usually will from 24 to 48 hours in advance, look to the protection of the garden produce which is not yet under cover. There are a number of ways to forestall the surprise attacks of this Jack Frost person, and representatives of the United States Weather Bureau, realizing that a good deal more produce will be subject to loss from frost this fall than ever before, have advised early preparedness on the part of farmers.

Prepare Protective Coverings.

First, the specialists suggest, protective coverings should be made ready. Vegetables can not scamper to cover, but the gardener can scamper covering to the vegetables and perhaps save a winter's supply in a short time if he is prepared. Old blankets, tarpaulins, sacks, straw, manure, paper, and various other materials may be used for covering. The conditions favorable for the formation of early frost in fall are usually of short duration and consequently protective measures ordinarily will have to be employed only for a day or two. After the first fall frost there is generally a return to normal temperatures for a number of days, possibly for a week or more, during which time immature vegetables that have been protected will continue to grow or ripen.

Frosts can not be forecast many days in advance. The United States Weather Bureau does, however, issue advisory warnings of frost from 24 to 48 hours in advance of its expected occurrence. These forecasts are telegraphed to practically every section of the country. As the season for frost approaches, the weather forecasts should be watched closely and when heavy or killing frost is forecast for any locality protection should be provided for such products as are susceptible to injury by cold weather.

When frost is imminent and protection is not possible or practicable, vegetables likely to be injured should be gathered and canned, dried, pickled, preserved, or stored. Those that can not be saved from exposure to freezing should, if possible, be gathered before thawing takes place. In the case of potatoes, especially sweet potatoes, all vines should be cut off at the surface of the ground after the occurrence of frost.

Treatment for Tomatoes.

Tomatoes may be pulled up, plants and all, and hung tops downward in a dark place, preferably a cellar. When treated in this way the fruit will ripen nicely and slowly and will be available for table use for a long time after the plants have been removed from the soil. Fruit that is very immature should be removed from the vines and may be used for pickling or in other ways. If facilities for hanging the vines are lacking, the tomatoes nearing full growth will ripen satisfactorily if wrapped separately in paper and stored in a dark place.

Many vegetables such as cabbage and turnips are not harmed by ordinary frost and need no special protection. In fact, such root vegetables as carrots, parsnips, and salsify are improved by freezing and are customarily left in the ground until needed.

RICE STORAGES.

Louisiana and Texas Contain Three-Fourths of Nation's Warehouse and Milling Capacity.

The total storage capacity of rice mills, elevators, and warehouses, three-fourths of which is in the South, is 37,619,000 bushels, according to the Bureau of Markets of the United States Department of Agriculture, which has just made a summary of rice statistics in view of the increased domestic use of rice.

Not counting the warehouses used by rice importers, brewers, jobbers, or wholesale merchants, and therefore restricted largely to storages at points of production for domestic rice available as food, the figures show that the largest storages exist in Louisiana and Texas, with California and Arkansas the only other States having storages of 3,000,000-bushel capacity. The States rank as follows: Louisiana, 19,894,000 bushels; Texas, 10,476,000; California, 3,870,000; Arkansas, 3,079,000; Tennessee, 250,000; South Carolina, 50,000. The coastal plain of the two first-named States contains three-fourths of the rice milling and storing capacity of the Nation.

Of the 68 mills reporting, just half are in Louisiana; the daily capacity of all mills is 199,800 bushels. Fifteen elevators reported, 13 of which are in Texas, and they represent nine-tenths of the 1,090,000 bushels capacity of the elevators. Of the 233 warehouses, Louisiana has 133, storing 19,869,000 of the 36,529,000 bushels capacity for this form of storage.

Use the poisoned-bran bait to control grasshoppers.

In the humid sections distribute the poisoned-bran bait for grasshoppers early in the morning.

RECLAIMING THE SWAMP

Administration of Drainage Districts—Capable Men Should Be Selected for Commissioners.

One of the severest criticisms which has been directed against drainage districts is poor management. The plan of improvement may have been carefully designed by competent engineers, the objections of landowners originally opposed to the district may have been withdrawn, and the economic factors may favor the district, but the success of the project can not be assured unless the commissioners who administer the district are men of sound judgment and have a capacity for such work.

Duties of Drainage Commissioners.

Among the duties devolving upon commissioners are: Employment of attorneys and engineers, entering into contracts for the construction of the improvements, negotiating with landowners for rights of way, adjustment of assessments, enforcement and collection of taxes, selling of bonds of the district, and accounting for all receipts and disbursements.

Assuming that the district is sound from an economic and engineering standpoint, if the district is to realize the best price for its bonds, the commissioners must have the records of the district in such shape as to impress prospective purchasers that the funds will be properly protected and disbursed.

To protect properly the interests of the district, the commissioners should insist that adequate bonds by financially responsible surety houses be furnished by the treasurer, contractor, and any banks or other institutions which may be used as depositories of the district's funds.

As the money to pay principal and interest of bonds is raised by taxes, the commissioners should see that sufficient taxes are levied and collected promptly each year to meet these obligations. No district can afford to default in this respect.

All proceedings of the commissioners should be recorded in a book, known as "The Drainage Record." In this book should be found authority for all entries in the books of account.

Accounting Should Be Accurate.

In matters of accounting, the tendency in large districts in recent years is to have expert accountants design the accounting system and have an annual audit made of accounts. As far as possible the system should be simple but complete.

It must be evident that only persons having business capacity should be selected to fill positions having such varied duties attached. The ability to harmonize differences and carefulness in personal business matters are traits to be sought in persons whom it is intended to make commissioners.

BANKERS AND AGRICULTURE.

Pig and Calf Clubs Fostered—Money Available for Live-Stock Clubs.

Bankers of many States are taking an active part in fostering boys' pig clubs, and other farm activities for both boys and girls. Indiana bankers, for example, are cooperating with State club leaders and county club supervisors and are furnishing money for live-stock clubs, the money to be spent in buying pure-bred or high-grade animals. They say that their communities need all of such stock that can be got, and they realize the need of good producers of milk, of meat, and of wool. The securing of such stock is bound to be to their advantage in the long run, because it means more prosperity for the farmers. The prosperity or the adversity of the town, they have found out, is lastingly bound up with that of farmers of the town, and they are doing what they can, in Indiana and elsewhere, to bring about an era of pure-bred animals on every farm.

In Chemung County, N. Y., the bankers, mainly in Elmira, the county seat, have advanced money for the purchase of 40 pure-bred Holstein calves at $120 apiece, to be used in connection with calf clubs. In Nebraska the bankers have not only been willing to furnish money for the hire of much-needed farm labor but have organized themselves into employment bureaus to help get the labor itself, which the farmer must have.

Much of this work of cooperation between city and country interests has been fostered by the club leaders and county agents employed cooperatively by the State, the Nation, and by the farmers and business men themselves.

COUNTY AGENT WORK.

Progress Made in the Northern and Western States During 1916.

During the past fiscal year, according to the United States Department of Agriculture, the number of county agents in the Northern and Western States increased from 419 to 542. Every one of these States has taken up the work, and three of them—Connecticut, Delaware, and New Hampshire—have an agent for each county. The States with the next largest proportion of agents in order are Massachusetts, Rhode Island, Vermont, New York, and Pennsylvania. The report on which these figures are based does not include State activities after July 1, since which date a number of new agents have taken up the work, largely in connection with war emergency work.

The Work Defined.

County agent work, according to the definition given by the department, is an organized method of carrying on agricultural extension in a county through a permanent leader chosen locally and representing the State college of agriculture, the Federal department, and also the farmers acting through a local organization usually known as a farm bureau.

The Federal department does not deal directly with the farm bureau or the county agent, but only through the State college of agriculture.

The County Agent.

The keystone of the whole structure is the county agent, whose position, says the department, is essentially one of leadership. He must have mature judgment, sympathy with farm problems, enthusiasm for farm life, knowledge of the farmer mind, clearness of thought and expression, tact, resourcefulness, farm experience, industry, good health, practical and scientific knowledge of agriculture. These requirements are high, say those in charge of the work, because it takes a high-class man to swing the job.

In some counties, notably in New York, there are also home demonstration agents, who give farm women the sympathetic assistance of a woman leader.

How to Get a County Agent.

Farmers in counties without an agent, and desiring to have one, should first get into communication with the State college of agriculture. It is generally held that it is unwise to appoint a county agent until a favorable sentiment is strongly manifested in the county by a considerable number of the farmers themselves.

THRIFT THOUGHT.

Have you left-over cereal mush from breakfast, and meat left from yesterday's dinner, Madam Housewife?

Combine them, suggests the United States Department of Agriculture, and make an appetizing luncheon or supper dish.

Place alternate layers of cold cereal (cut or mashed into fragments) and minced left-over meat in a baking dish. Make the top layer of minced meat and bread crumbs. If the mixture is too dry, pour over it enough milk to moisten. Place in medium oven until heated through and browned a little on top.

CANNED POULTRY.

How to Can Foods Prepared from Surplus Poultry and Save Expense of Feeding.

Poultry clubs throughout the Northern and Western States are putting their surplus stock into cans and jars for next winter, according to specialists of the United States Department of Agriculture. The recipes used by the club members to can foods prepared from poultry are offered by specialists for the use of other poultry raisers who wish to save their fowls for use without being put to the expense of feeding them for several months. The recipes follow:

Chicken Soup Stock.

To each 3 pounds of chicken add 1 gallon of cold water and simmer for 5 hours. Remove meat and bones and strain. Add sufficient water to make as many gallons of stock as the water originally used. If it is desired to save this stock for future use fill glass jars or tin cans with the hot stock, partly seal the glass jars and cap and tip the tin cans. Process 90 minutes if using a hot-water bath outfit; 75 minutes if using a water-seal outfit; 60 minutes if using a 5-pound steam-pressure outfit; 45 minutes if using a pressure-cooker outfit. This stock is used to make soup where the term "chicken-soup stock" is employed.

Chicken Broth with Rice.

For each gallon of chicken-soup stock use 12 ounces of rice. Boil the rice 30 minutes. Fill the jars or tin cans two-thirds full of rice and the remainder with soup stock. Partially seal glass jars. (Cap and tip tin cans). Process 90 minutes if using a hot-water bath outfit; 75 minutes if using a water-seal outfit; 60 minutes if using a 5-pound steam-pressure outfit; 45 minutes if using a pressure-cooker outfit.

Chicken Gumbo.

Cut 2 pounds of ham into small cubes and boil 30 minutes in a little water. Mince 3 pounds of chicken and chop finely ½ pound of onions. Make a smooth paste of ½ pound of flour. Add all these ingredients to 5 gallons of chicken soup stock. Then add ½ pound of butter and ¼ pound of salt and boil 10 minutes. Add 3 ounces of powdered okra mixed with about 1 pint of water. Fill into glass jars or tin cans while hot. Partially seal glass jars. (Cap and tip tin cans.) Process 90 minutes if using a hot-water bath outfit; 75 minutes if using a water-seal outfit; 60 minutes if using a 5-pound steam-pressure outfit; 45 minutes if using a pressure-cooker outfit.

Canned Poultry.

Recipe No. 1.—Kill fowl and draw at once; wash carefully and cool; cut into convenient sections. Place in wire basket or cheesecloth and boil until meat can be removed from bones; remove from boiling liquid and remove meat from bones; pack closely into hot glass jars; fill jars with pot liquid, after it has been concentrated one-half; add level teaspoonful of salt per quart of meat for seasoning; put rubber and cap in position, not tight; sterilize the length of time given for the one particular type of outfit you are using:

	Hours.
Water bath, homemade or commercial	3½
Water seal, 214°	3
5 pounds steam pressure	2½
10-15 pounds steam pressure	1

Remove jars, tighten covers; invert to cool and test the joint.

Recipe No. 2.—Kill fowl and draw at once; wash carefully and cool thoroughly; cut into convenient sections and pack at once into glass jars; fill with boiling water; add level teaspoonful of salt per quart; put rubber and cap in position, not tight and sterilize the length of time given below for the one particular type of outfit you are using:

	Hours.
Water bath, homemade or commercial	4
Water seal, 214°	3½
5 pounds steam pressure	3
10-15 pounds steam pressure	1

Remove jars; tighten covers; invert to cool and test the joint.

KEEP THE HORSES BUSY.

The horse that works 1,000 hours a year and costs $100 for feed, shelter, etc., is cheaper than the horse that costs but $75 for keep and works but 500 hours. The former costs but 10 cents per hour worked, while the latter costs 15 cents. Wise use of the farm horse to his fullest working capacity is thus of vital concern to the farmer, according to United States Department of Agriculture Bulletin 560, just issued, "Cost of Keeping Farm Horses and Cost of Horse Labor," embodying the results of the study of the records for 316 horses on 27 farms in Illinois, Ohio, and New York.

In Illinois 154 horses on 10 farms showed an average yearly cost for keep of $100.65. The average yearly hours worked per horse were 1,053 and the cost per hour worked 9.56 cents. Records for 72 horses in Ohio showed an average cost of keep of $120.27, average hours worked per horse 866, and cost per hour 13.09 cents. In New York the average yearly cost per horse of 90 horses on 10 farms was $145.02, average hours worked 1,020, and average cost per hour 14.22 cents.

Four parts of potato are equal to about one part of cereal in a mixed diet.

STUDY WILD ANIMALS.

Knowledge of Details in Life Histories Important in Prescribing Control Measures.

To prescribe the most effective measures for the control and eradication of rodents and obnoxious wild animals, the most intimate details of the life histories of the animals must be known. The Biological Survey of the United States Department of Agriculture is in need of this information. It would like to know, for instance, more about the breeding habits and young of ground squirrels, pocket gophers, kangaroo rats, pocket mice, wood rats, grasshopper mice, and harvest mice. Accordingly, the survey recently has sent a request to its field naturalists asking for more detailed study of many of the American mammals. Other persons interested are invited to send in reports of their study.

Study Food Habits of Rodents.

Particular attention should be given, the request states, to locating and digging out the burrows of the various ground-inhabiting species. Measurements and detailed sketches showing the character of these underground habitations, the nesting and food chambers, and other peculiarities should be made. Insufficient information is available as to the quantity and character of the food many such animals store in their underground retreats or in other places.

The underground habits and young of shrews and moles, as well as winter chambers and nests of hibernating rodents, are insufficiently known. The breeding habits of bats are almost unknown, and every opportunity should be taken to study them, the statement adds. Bat caves or roosting places should be carefully examined and reported in detail. Close attention should be given to the food habits of all species and their relations to agriculture and forestry.

Field naturalists in charge of biological surveys of certain territories should familiarize themselves with the Survey's collection of species from their areas and be guided in their field work by the needs of the collection. Good photographs are needed, particularly of the smaller species, their haunts, nesting places, and of whatever else illustrates their habits. The need of study as described for habits of animals applies with equal force to birds, the statement adds.

Billbugs affecting corn can not live on cotton, therefore follow corn with cotton.

Buy labeled field and forage crop seed—know the man who put it up, its kind, its germination, and, if origin matters, where it was grown.

NEW BREAKFAST FOOD.

Canning Clubs of North and West Develop a Useful Product Made from Corn.

A new corn breakfast food which can be canned at home for future use and which should help materially in lessening the drain on the wheat supply of the country, made by the general use of wheat breakfast cereals, has been evolved by the boys' and girls' club leaders for the Northern and Western States, of the United States Department of Agriculture. The new product is made from ordinary field corn when it is between the "milk" and "dough" stage, and comes from the can or jar in a solid, homogeneous mass which can be sliced and prepared in a number of attractive and appetizing forms. It is high in nutritive value.

The new product has been named the 4-H Brand Corn Club Breakfast Food, and all corn-club members have been asked to put up a number of packs both for family use and for sale.

Preparing the Food.

The directions furnished the club members for preparing the food follow:

The corn should be selected between the milk and the dough stage. Wide-mouthed glass jars or tin cans should be used for canning this product. Avoid packing container too full, as the product swells during the sterilization period. The corn should be canned the same day it is picked from the field, if possible. The yellow field corn makes a yellow, butter-like food product when ground and canned. Avoid mixing the white and the yellow, or "Bloody Butcher," corn in the same batch of food products. Secure a good grade of food chopper for grating the corn. Small 10-cent hand graters can be used, but work with these is too slow and tedious.

Blanch the corn ears in boiling-hot water or live steam for 10 minutes. Remove and dip quickly in cold water. Cut the corn from the cob with a sharp, thin-bladed knife. Feed the corn to the food chopper and grind to a pulp. Cook this product in a kettle, add one level teaspoonful of salt to each quart, and a little butter, and sweeten a trifle with sugar. Cook (stir while cooking) until the product has assumed a thickened or pastelike mass. Then pack this product immediately in tin cans or hot glass jars to one-fourth inch of the top. Seal jars by placing rubber and cap in position and seal tin cans completely. Place jars and cans in wash boiler or sterilizer and process for the length of time given below for the particular type of outfit used:

	Minutes.
Hot-water bath, homemade or commercial	180
Water seal, 214°	120
5 pounds steam pressure	60
10 or 15 pounds steam pressure	50

How to Use the New Breakfast Food.

Remove from the jar or can and slice into uniform, attractive slices; put slices on a toaster, butter, and place in the oven. Serve hot.

Fry the slices in the "skillet" or frying pan, in butter. This will make a delicious breakfast dish.

Bake the slices in the oven, slightly buttered, with gravy, sauce, or sirup added when served.

Slice, bake, and serve very much the same as hot corn mush; add milk and sugar.

One medium-sized potato (6 ounces) supplies about as much starch as two medium-sized slices of bread (about 2 ounces).

A flock of sheep often gives a farmer an excellent market right on his place for grain, hay, and root crops.

The weeds destroyed and the manure produced by sheep on a farm ordinarily pay for the labor devoted to the flock.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, Carl Vrooman.
Assists in directing the work of the department. In the absence of the Secretary becomes Acting Secretary.

Solicitor, Wm. M. Williams.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. Spillman, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, Chas. F. Marvin, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, A. D. Melvin, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, Leon M. Estabrook, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. Howard, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. Nelson, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals. Controls noxious mammals and experiments in fur farming.

Office of Public Roads and Rural Engineering, Logan Waller Page, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. True, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, Charles J. Brand, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Enforces Cotton-Futures Act.

Division of Publications, Jos. A. Arnold, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. Marlatt, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. Haywood, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., OCTOBER 3, 1917. No. 9

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing and Preparation the Next Few Weeks

NORTH AND WEST.

The Office of Extension Work in the North and West, United States Department of Agriculture, urges that the matters discussed below have immediate attention.

Corn Situation.

Frost has done much damage in North Dakota, South Dakota, Minnesota, Michigan, Iowa, Illinois, Indiana, Ohio, and a few other corn States. This will result in a serious seed-corn problem in many localities. County agents, reinforced by emergency demonstration agents in practically all the States affected, are pushing campaigns to encourage the careful selection, curing, and storing of seed corn. The need of making careful plans to get the largest amount of feeding value out of soft corn and corn stover is apparent to all careful farmers.

Begin Plowing for Spring Grains.

Most of the winter-wheat areas have already been sown. In some of the more southern of the northern States it will still be possible to make plans for winter rye. The danger of scarcity of labor next spring argues that farmers should begin now to get ready for next year's seeding. Every acre plowed this fall will be that much work out of the way for next spring. Fall plowing will not only tend to relieve the labor shortage next spring, but it will also conserve the moisture for next year's crop (which is especially desirable in semiarid regions) and will make the frosts help to fertilize the fields.

Potatoes.

Attention is being called to the increased facilities needed by farmers for storing potatoes and other root crops. The high price of grains is greatly increasing the demand for potatoes; and all who have cellar or other storage facilities are being encouraged to lay in a winter supply. The increasing use of potatoes in bread making may well provide a market for millions of bushels. In addi-

(*Continued on page 2.*)

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MARKETING.

The following timely recommendations are made by the Bureau of Markets, United States Department of Agriculture:

"Play Safe" in Disposing of Crops.

The farm products now in hand have been produced at an unusual cost per pound or per bushel. Of some crops there is a very large supply, and successful marketing presents a serious problem. This is notably true of potatoes and beans.

The difficulties of disposing of these crops profitably will be greatest in areas which have produced them largely for the first time or where existing marketing agents are no longer equal to handling the output.

Sound business demands that the cost of production be figured as nearly as possible and that the grower "play safe" by selling freely at any price which gives him even a small margin of profit. The farmer should market so gradually that there can be no squeeze or rapid rise in price before spring. The United States Department of Agriculture will make every effort to keep the farmer informed on the movement of commercial stocks and on prevailing prices in all of the large centers.

Grade Potatoes.

Producers should take great care in digging potatoes that the tubers are not cut and bruised. Great waste results from such defects.

The most successful producers of potatoes do not place large quantities of ungraded stock on the market at harvesting time. Such stock serves to glut the fall market and to injure the winter market. Nor do such producers ship cull potatoes which usually will not bring the cost of their transportation.

Many farmers in large shipping sections are using "machine sizers" advantageously. However, the machine can not be expected to grade for quality, which must be done by hand.

(*Continued on page 5.*)

IN THE SOUTH.

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

Wheat and Rye.

The campaign for increased acreage of wheat and rye in the Southern States is moving along well. The increased acreage asked for by the Federal Department of Agriculture and promised by the States is substantially assured in every State. The month of October will practically finish this line of work. Entomologists from the department are assisting the States in fixing the time of planting to avoid damage from the Hessian fly.

Planting Seed.

Every farmer in the South should look after his planting seed during the month of October. Corn, soy beans, velvet beans, peas, and peanuts should be selected and carefully stored. Seed may be scarce next spring and a little extra effort this fall will prevent a great deal of worry and expense in the spring.

Boll Weevil.

In all cotton sections where the boll weevil is present farmers should gather the cotton crop as rapidly as possible in order that the fields may be cleaned up and the stalks destroyed a considerable period before frost. Early destruction of stalks serves two purposes—it destroys the food of the fall crop of weevils and it destroys the hibernating places. Where possible cut the stalks after the crop is harvested and plow them under, making sure to cover all the stalks completely. If the farmer has not sufficient team power to do this the safest plan is to burn the stalks.

Hay and Silos.

October is a good month to lay up stock feed for winter use. Fill the silos, cut sorghum and peavine hay, cut the lespedeza for hay and seed.

This is the month to harvest peanuts, soy beans, and velvet beans for seed and for sale on the market. When these are harvested the hogs may be turned in to gather what is left in the field.

Potatoes.

This is the month to dig and store the fall sweet-potato crop. The community storage house or farm storage house suggested last month should be ready. Safe storage is an important item of food conservation.

Let the fall Irish potatoes come to full maturity. Consult the county agent regarding storage iu pits and cellars for winter use.

Sirup.

It is very important that southern farmers who have late sorghum or sugar cane should utilize it to the fullest possible extent in making sirup for family use and for sale. The month of October is the time to act. Every possible preparation to make the sirup on the farm or to haul the cane to a near-by mill for the manufacture of sirup should be made.

Prepare for Winter.

October is a good month to repair the buildings and get them in good shape for winter use. This is especially true of sheds, barns, feed lots, and other buildings used by live stock.

The farm equipment of machinery, tools, etc., also should be looked after. Proper protection from the weather, a little paint to prevent the rotting of wood aud some heavy grease or paint to prevent the rusting of iron and steel parts will make the tools last longer.

Live Stock.

Utilize the fall pastures and fields where crops have been harvested, to the fullest possible extent, and save the waste products of the farm. Use the pastures and fields and all field stored roughage and save the grain and hay which you have stored in the barn for use at times when the fields and pastures can no longer be utilized.

Look over your live stock carefully and select those animals which are productive and which ought to be kept, and sell those which are unproductive. Prepare the cull animals for early market and save the room and feed for good stock.

Do Not Sell Work Stock.

Horses and mules are now in great demand and will be during the war. They are necessary to the conduct of the war, but they are also necessary for operating farms and the food obtained from the farms is necessary for the conduct of the war. Because of the demand and the disturbed transportation facilities farmers are urged not to sell the work stock in the fall expecting to buy back new stock in the spring. It is customary in many sections of the South for farmers, both owner farmers and tenants, to sell their mules in the fall and buy new ones in the spring to save feeding. The incentive to follow the usual custom is greater this year than ever before on account of the high price of feed, but the risk of being unable to obtain mules and horses in the spring to work the farms is much greater at this time than in any other year. The only safe plan is to hold the necessary work stock for another year. As hand labor on the farms becomes scarcer, good horses, mules, and modern labor-saving machinery becomes much more necessary.

County Agents.

There are now about 1,000 county agents in the South and more are being appointed as rapidly as trained men can be found. If farmers have problems iu storage, marketing, harvesting, selection of seed, care of live stock, or any other farm problems, they should consult the county agent. Make diligent inquiry and find out about this organization and its ability to help you during the war.

NORTH AND WEST.

(Continued from page 1.)

tion, the substitutiou of this universally used vegetable for bread is expected to make such a demand as will entirely absorb the unusually large crop indicated by the latest estimates. In view of the substantial crop in sight, growers should be more than usually careful in grading and otherwise preparing their potatoes for the use of more discriminating consumers who are willing to pay the higher and more profitable prices for well-graded products. Loans on stored potatoes are not likely to be made except on well-graded, clean stock.

Save the Best Breeding Stock.

The high price of feed and the shortage of the hay crop in certain sections of the Northwest has resulted in excessive shipments of live stock to the large market centers. Iu many sections the need of this action is evident. The experience of last spring, when a late season and shortage of feed resulted in the loss of considerable stock upon the range, has left its impression with stockmen, who are arranging to avoid a similar condition during the coming winter.

While it is apparent that range stock in many sectious must be largely reduced in number, it is being strongly urged by county agents and others conuected with the State and Federal Governments that stockmen should bear in mind the importance of retaining the best breeding stock from their herds and flocks in order to be able in years to come to restock their ranches in an economical manner. Farmers in the corn belt are also in danger of reducing their live stock below a proper balance on account of the high price of feed. Now is the time for stockmen to consider the future and to plan for maintaining the best blood which they now possess.

Straw as Winter Feed.

On account of the high price of feed, as well as the high price of live stock, farmers are planning to conserve all concentrated feed by substituting as much roughage as possible. The use of a large amount of roughage will enable farmers to produce more pounds of beef, pork, and mutton at large returns for feed. All straw and other roughage, especially oats, wheat, and bean straw, should be carefully stacked or baled to keep it in the best possible condition for feeding. Good straw near large markets will also bring good prices when baled.

Coal and Cordwood.

The threatened scarcity of coal due to transportation difficulties should stimulate the preparation of cordwood by farmers throughout the northern and eastern States. The price of wood is always influenced by the price of coal, and not since the year of the big coal strike has there been a prospect of such good prices for wood. Farmers should take advantage of this situation, not only to get an added profit from what is usually the least profitable portion of the farm, but to get the wood lot into a more productive condition and to provide fuel for their own use. The outstanding difficulty in the introduction of forestry principles in this country has been the low price obtainable for the poorer products of the woodlot. This year offers an exceptional opportunity to get rid of the unproductive trees in the woodlot and thus improve its permanent condition. By keeping labor and teams employed in the woods through the winter months, the labor income can be increased and men can be kept for rush seasons.

SELL LAMBS ON "PLUCK-OUT" BASIS.

Where lambs are sold with the "pluck," or heart, liver, lungs, and windpipe, left in the carcass, the retailer pays an exorbitant price for the "pluck," according to the meat-market specialists of the United States Department of Agriculture. The "pluck" weighs from 2 to 4 pounds, according to the size of the lamb. With choice lambs selling at $25 a hundredweight, the dealer will pay 75 cents on a full carcass basis for a 3-pound "pluck," the meat on which brings approximately 25 cents. Moreover, when demand is slack, "plucks" spoil in the carcass and are a total loss as meat. Market specialists suggest that the retail trade would do well to follow the example of those dealers who pay a premium of 1 to 1½ cents per pound for lambs sold on a "pluck-out" basis.

Feed the boar in summer only enough grain to keep him in breeding condition.

MAKE YOUR OWN SILO.

Homemade Structure Recommended as Good and Cheap Means to Help Reduce Feed Bills.

The silo was never so valuable to the farmer as it is now in furnishing one of the best means of reducing feed bills. It can be made on the farm with little trouble, of either wood or concrete, says the United States Department of Agriculture, which will furnish plans and specifications without cost. Where there is no silo, or when another is needed, the department recommends the building and filling of one before frost comes.

Advantages of the Silo.

Among the advantages claimed for the silo, particularly at this time when the high price of grain threatens the very existence of the dairy industry, is that less grain may be fed without reducing milk production, provided the dairyman feeds more silage and legume hay. It is pointed out that the building of silos at this time is like the building of ships or fortifications; the silo will help to win the war because it means the saving of grain. Less grain is available for the feeding of cattle, since it is needed for human food and must be conserved for that need. Yet milk production must be maintained, and this can be done by supplementing a shortened grain ration with silage.

The silo offers the best way of preserving the mature corn crop, 40 per cent of the food value of which is in the stalks and leaves. It also saves the crop which, for any reason, must be harvested before it is mature. When the farmer harvests only the ears of corn he loses nearly half the value of the crop; when he puts it into the silo the loss is very small. When drought, frost, or insects threaten a field of corn before it is ripe the entire crop may be lost unless the farmer has a silo ready in which to preserve it.

Value of Succulence.

Just as fruits and green vegetables are canned to supply succulence to the family during the winter, the silo supplies succulence to the cow, and succulence adds to the milk flow. The abundant milk flow obtained from June pasture is, to a large extent, due to the juices of the grass; the silo provides a similar juiciness during winter, when pasture is not available. It promotes the health of dairy cattle by providing the coarse feed to which the digestive system of the cow is accustomed. Cows like silage, and no other feed combines so well with dry hay and grain to produce much milk at little cost.

Types of Silos Recommended.

The four types of silos recommended for home construction are the concrete, the stave, the modified Wisconsin, and the wooden-hoop type, all of which preserve silage equally well. The concrete silo has the advantage in permanence and stability, but has a higher initial cost. The stave silo is cheaply, easily, and quickly constructed, and there are more of them in the United States than of any other type. The modified Wisconsin is made of boards nailed laterally on the inside of studding placed in the form of a circle, and is said to be more substantial than the stave silo. The wooden-hoop silo requires somewhat less material than either of the other two types of wooden silos, and may be built of 1 by 4 inch tongue-and-groove flooring, with hoops of home-grown material, such as oak, elm, ash, or chestnut, from the farm wood lot.

Anyone who desires to build a silo should call on the extension department of his State agricultural college for any assistance that may be needed. If the college is unable to give the desired help, the United States Department of Agriculture will furnish, free of cost, bills of materials and specifications for various dimensions of any of the silos.

SOME SILO SAYINGS.

"Save the grain" is the motto now,
Using silage to feed the cow.

Stave off the high costs of dairy feeds with a stave silo.

Don't be satisfied with the abstract idea of having a silo; make it concrete. It can't rot out, blow down, or burn up.

You like canned fruits and vegetables during the winter. Silage, says the United States Department of Agriculture, is the dairy cow's canned stuff.

If you feed only the ears you lose nearly half the food value in the corn crop. Turn the leaves and stalks into silage and save that 40 per cent.

After all is said, the fact remains that the two necessary war foods are bread and milk. For winter milk production nothing equals the silo.

COW-TESTING ASSOCIATIONS.

Some Examples of What Can Be Done to Improve the Dairy Business.

What can be accomplished in one year, when farmers work together for improvement in the dairy business, is well illustrated in the first annual report of the Germantown-Gaithersburg (Md.) Cow-Testing Association.

At the beginning of the year few farmers fed any grain to their dry cows; none fed a properly balanced ration; prepared feeds were largely used, and some farmers dished up the grain with a scoop shovel and fed all their cows very nearly alike, regardless of production. As is usually the case under such circumstances, many excellent cows were underfed, and many worthless ones ate up the profits made by the large producers, the United States Department of Agriculture points out.

Cooperation Changes Conditions.

Through the active cooperation of all members of the association these conditions were rapidly changed. Better feeding of dry cows increased the milk flow during the following lactation period, the use of a balanced ration of home-mixed feed brought about more economical feeding, and abandoning the scoop-shovel method by feeding according to production prevented waste. The elimination of low producers that would not respond to better feed and care was the greatest saving of all. As soon as the changes went into effect profits began to increase and immediately there was an added interest in the business.

During the year the owner of herd X fed his cows according to production, something he had never done before. By so doing, the milk flow was increased 20 per cent and the income over cost of feed was increased by $652. This was accomplished not only with the same number of cows but with the same cows, the principal difference being a more intelligent method of feeding.

Milk Production Doubled.

During July, 1916, the owner of herd Y shipped 30 gallons of milk daily from 20 cows. All cows giving milk were fed alike and dry cows received no grain. Within three months, by feeding a balanced ration, and by feeding according to production, the daily shipment of milk was increased to 60 gallons. During that period the total number of cows remained the same, but some of the lowest producers were replaced. The increased production, therefore, was due partly to culling, but more largely to better methods of feeding.

Briefly stated, the best results were obtained by members (*a*) who fed a good balanced ration mixed on the farm; (*b*) who fed dry cows so they would freshen in good condition; (*c*) who weighed the feed and fed according to production; and (*d*) who practiced regularity in their work.

Information about cow-testing associations, and assistance in forming them, can be obtained upon application to the Department of Agriculture, Washington, D. C.

The most economical way of shipping stock to market is in carload lots.

A bull with a good beef form and a marked tendency to early maturity is a prime requisite in producing baby beef.

Wool growers should cooperate in order to obtain the full market value of their product; enough growers should unite so that several thousand pounds of each grade of wool can be marketed at a time.

RYE INCREASE URGED.

Food Authorities Are Recommending This Grain to Supplement Wheat—Some of Its Advantages.

Rye is recommended for a larger acreage increase than that suggested by the United States Department of Agriculture for any other grain crop. Compared with the 10-year average, the more than 5,000,000 acres urged for rye represent a 124 per cent increase, the next largest increase advised for 1918 being 43 per cent for winter wheat. The rye figures represent a 51 per cent increase of the area sown to rye last year, when the largest acreage in the history of the country was put in.

The main reasons why the department recommends rye are that it is hardier than wheat, that it will grow on some lands not adapted to wheat, and may be sown later than wheat. In addition, it is less subject to injury by insects and disease than wheat is, and it usually matures before rust, the great enemy of the small grains, becomes severe. Rye will endure a more acid soil, as compared with wheat, and is generally a better crop for fall, winter, and spring pasture because it makes larger, earlier, and more upright growth.

It has advantages on the economic side as well as on the cultural, says the department, and in some sections produces a more profitable crop than wheat. It uses less nitrogen, pound for pound, and the straw has a higher value than wheat straw.

Our Place in Rye Production.

The United States, noted for its preeminent place among the nations in grain production, grows less than 3 per cent of the world's rye crop. Winter rye is the best for this country and may be grown from the cotton belt to the northern boundary by using the varieties adapted to the different regions, the Italian varieties in the South and Swedish and Russian strains in the North. At the northern boundary of Florida, rye ripens about the middle of May, and the average date of ripening is approximately one day later for each 15 miles northward until, in the northernmost States, it ripens between July 10 and July 25.

Full details as to the culture of rye in the eastern half of the United States, where 80 per cent of the crop is grown, are given in Farmers' Bulletin 756, United States Department of Agriculture. This bulletin discusses the production and harvesting of the crop, and gives a description of soils and varieties that may be expected to yield good results in various regions. Since rye is strongly recommended by the department, and by the Food Administration forces, farmers who may contemplate planting it are urged to write to the Department of Agriculture at Washington for copies of the bulletin. Most of the colleges and experiment stations in the northeastern quarter of the United States have also issued publications about this crop in their respective States.

QUARANTINE RELEASED.

Restrictions Due to Sheep Scab Removed from Nearly One-half of Texas.

The first release of territory in Texas from quarantine on account of sheep scabies since the imposition of the quarantine against the entire State, July 1, 1914, has been announced by the United States Department of Agriculture, to become effective October 15 next. The removal of the quarantine affects 107 counties of an aggregate area of 121,451 square miles, or nearly one-half the area of the State.

Systematic work for the eradication of scabies was begun in Texas by the Bureau of Animal Industry of the United States Department of Agriculture May 1 last. The work will be continued with a view to releasing other portions of the State from quarantine as fast as they are freed from the disease.

Control Measures Proving Successful.

Because of the widespread existence of scabies the United States Department of Agriculture at one time had under quarantine Texas, New Mexico, Colorado, Wyoming, Montana, and all States to the West. From time to time States and portions of States to the East also were under quarantine. The disease now has been brought under control to such an extent that the quarantine has been raised from most of this territory. After October 15 there will remain under quarantine only 10 counties in California and the portion of Texas not included in the release just announced.

Sheep scabies is caused by a small mite which irritates the skin of sheep, causes the loss of large quantities of wool, and sometimes results in the death of the animals. The disease is combated by dipping the affected animals in a weak nicotin solution, or in a solution of lime and sulphur.

If hogs are allowed too much range when pasturing on forage crops they will trample more than they eat.

Speed in finishing the animals for market is one of the most important factors in the baby-beef industry.

Prompt action is imperative in dealing with hog cholera; therefore, get expert advice at once if you have a sick hog.

COLD-STORAGE CELERY.

Experiments Show It Can Be Stored Three Months if Properly Crated and Handled.

If celery is packed in small, well-ventilated crates and carefully handled, it will keep in good cold storage for three months or longer, according to results obtained in a four-year test reported by the United States Department of Agriculture in Bulletin 579, "Celery Storage Experiments."

It is believed that as a result of these experiments it will be much easier for growers and dealers to obtain cold storage for celery. Heretofore it has been difficult to secure space for this product because the celery often spoiled, largely because of careless handling, thereby prejudicing storage-house operators, who prefer to handle other products. The old method of storing celery in the field and in houses of the cellar and semicellar type is not satisfactory, because temperature and moisture conditions can not be controlled.

Objects of Tests.

The objects of the experimental work with celery storage, begun several years ago, were to determine the factors which hasten decay in celery in storage houses; to learn the best methods of reducing the loss of celery in storage due to decay and mechanical injury; to determine the best type of crate in which to pack celery to be held in a cold-storage warehouse; and to study the effect of the temperature of the storage room on the keeping quality of the celery.

The celery used in the experiments during the four years was grown and stored in western New York. Each experimental lot was packed in the field and crated in the storage house by representatives of the department. In every instance the celery used was free from disease and was so handled that the different lots were comparable. Six types of crates were used—a standard crate, a partition-ventilated crate, a 16-inch crate, a 14-inch crate, a 11-inch crate, and an 10-inch crate.

Smaller Crates Preferable.

The smaller crates appear to remove the two chief causes of spoilage—poor ventilation and breakage. In every instance the decay was much less in the small and partitioned crates than in the standard crates, say the specialists, in summarizing the results of the tests. Of the crates used during two or more years, the 14-inch crates gave the best results, followed by the 16-inch, the partitioned, and the 11-inch solid head, in the order given. Small crates cost a little more than the standard crate in proportion to their capacity, but this disadvantage is more than offset by the smaller percentage of breakage. Small crates are preferred by

many storage-house managers and handlers of celery because of the ease in handling and the smaller amount of breakage. In a market test made in January, 1916, celery in small crates sold for a much higher price than similar celery in standard crates handled in exactly the same way.

MARKETING.

(*Continued from page 1.*)

By all means, potatoes should be graded. No. 1 and No. 2 grades should not be mixed. The Department of Agriculture and the Food Administration have jointly recommended potato grades which are now available to the public as Markets Document No. 7, United States Department of Agriculture. A summary of these grades is published in this issue of the Weekly News Letter.

Straw as Roughage.

If there is any danger of a shortage of hay in any locality, farmers in that region should not burn their straw stacks this fall. Well-preserved oat straw makes excellent roughage, while any straw can be used for feed and for fertilizer.

Cottage Cheese by Parcel Post.

When properly made cottage cheese is wrapped in parchment paper and inclosed in paraffined cartons or other substantial containers it can be shipped satisfactorily by parcel post. As the parcel-post charges compare favorably with the retailers' margins on cottage cheese, it is practicable and feasible in most instances to ship it by parcel post. The weather conditions, too, at this season are more favorable for shipping cottage cheese by parcel post than during the summer..

Farmers producing small quantities of cottage cheese should be especially interested in parcel-post marketing, as regular customers often may be secured for parcel-post products which otherwise might not be marketed. In view of the efforts which are being made to increase the production and consumption of cottage cheese, the opportunities for marketing it by parcel post are greatly increased.

A number of women's clubs and other women's organizations in the rural districts have assisted their members to market garden and farm products by arranging for the sale of these products with women's clubs in the cities. The Bureau of Markets, United States Department of Agriculture, has been of assistance to women's clubs in such work, especially where the members engaged in the direct marketing of eggs, dressed chickens, and cottage cheese.

Feed the brood sow liberally when she is suckling her litter.

BOLLWORM MENACE.

To Avert It Experts Assemble at Hearne, Tex., Where Dreaded Pest Has Been Found.

Thoroughgoing measures to miminize the danger of the dreaded pink bollworm gaining a foothold in the cotton fields of Texas, following the discovery of two of the insects in a field near Hearne, Tex., were announced by the United States Department of Agriculture.

It is known by the department that this infestation developed from seed which were imported from Mexico prior to the establishment of the quarantine by the Federal Horticultural Board. In fact, it was these importations from Mexico which caused the department to establish the quarantine which later resulted in the interception of many thousands of tons of seed from Mexico.

Special Field Force.

The Federal Horticultural Board of the department has drafted a special field force of 12 experts from the Bureau of Entomology, who have been instructed to proceed to Hearne, Tex. Dr. W. D. Hunter, in charge of southern field-crop insect investigations of that bureau, and a member of the Federal Horticultural Board, has left Washington for Hearne to take charge of this staff of entomologists, who, in addition to three inspectors now in the field, will work in cooperation with a number of State entomologists in the inspection and clean-up work already started. Field men of the United States Department of Agriculture and State authorities already on the ground are carefully picking and burning every boll from the 7-acre field of cotton in which the pink bollworm was discovered, advices to the department show. The stalks will be pulled and all fragments of bolls and seeds collected in a searching examination of the ground. All this material will be burned. The ground will then be covered with oil-soaked straw, which will be burned.

Source of Infestation.

The insects discovered at Hearne undoubtedly escaped from infested Mexican seed which had been shipped to the cottonseed-oil mill there before the present quarantine was imposed. Sixty-seven carloads of cottonseed from the Laguna district of Mexico were shipped to this mill from July to November 4, 1916, the effective date of the quarantine.

The experts assembling at Hearne, after completing the field inspection and clean-up work at that point, will be assigned to the vicinity of 10 other cottonseed-oil mills in Texas to which Mexican seed was shipped last year and which, therefore, may be points of dissemination for the pink bollworm.

Department entomologists have received reports of examinations made in the vicinity of the 11 mills throughout the past year and believe there is little danger of the insects developing in the cotton fields in the vicinity of the mills, other than that at Hearne. No chances will be taken, however, and every effort will be made to induce owners of fields adjacent to these mills to treat them as the infested and other fields at Hearne will be treated. It is believed that at the latter place the insects have not found their way beyond the isolated 7-acre field in which they have been discovered, and that the measures to be taken will completely eradicate the pest.

The other mills in the vicinity of which measures to prevent pink-bollworm development will be taken are situated at Dallas, San Antonio, Houston, Beaumont, New Braunfels, Alice, Pearsall, Kaufman, Grand View, and Wolfe City. In addition to taking precautionary measures in fields adjacent to the oil mills, the department will take measures in cooperation with State authorities to safeguard the cotton and cottonseed produced on these fields during the current season. The cotton will be sent to Boston for fumigation or sold for immediate shipment to European markets. The seed will be crushed or burned.

GROW RYE IN SOUTHEAST.

Use Home-Grown Seed to Supplement the Wheat Crop in Parts of the South.

Rye should be more generally grown in many parts of the Southeastern States than it is at present, says the United States Department of Agriculture. This is especially desirable, it adds, as a present-day war measure.

Wheat and rye should be considered together in any program for increasing the supply of bread grains, especially for home-grown bread in the Southeast. There are many places, for example, where rye can be grown with less risk than wheat. On poorer and sandier soils than are suited to wheat, rye may succeed; and it will make a crop with less fertilizer. For normal conditions it is not advisable to pay the existing high prices for potash for the rye crop. Rye can be used as a bread grain not only by those who are accustomed to it but many others who have not eaten rye bread are likely to find it a welcome variation in breadstuffs.

Rye is the best grain in most of the Southeastern States as a cover, green manure, and grazing crop.

Home-grown seed of rye, as with most others, is best. Northern-grown seed is not suitable for sowing in the South.

CANNING-CLUB MARKETS.

Members Should Make Arrangements for Selling Products if Work Is to Be Remunerative.

Close attention to marketing problems should be given by members of boys' and girls' canning clubs, now that the products of these organizations are being turned out in considerable proportions, say specialists of the United States Department of Agriculture. Unless steps are taken to bring about the disposal of the canned goods in a well-ordered and practical way, it is pointed out, there is likelihood that the operations of the clubs will not be remunerative. The specialists offer suggestions for the solution of marketing problems facing the clubs, in a publication, "The Marketing of Canning Club Products," recently issued as Markets Document No. 5.

One of the first essentials to satisfactory marketing arrangements, say the specialists, is standardized products. Standardization should be brought to the point where cans or jars of a given fruit or vegetable put up by the different members of the clubs are uniform in pack, appearance, quality, and condition. Every container which is fully up to the standard represented by the label or brand will then be an advertisement in itself and often a guaranty of further purchases.

Specialties.

In preparing the products which are to be sold, it is well also to put up a large quantity of specialties in comparison with the quantity of plain canned goods, such as tomatoes, since there will then be less competition with commercial goods.

Having assured the quality of their products, the clubs should then make an informal survey of the conditions in their community to ascertain the consuming capacity of the community served by retailers, the quantity of the various kinds of products handled by the retailers, the sources from which they obtain their supplies, the prices they pay, the prices at which they sell, and their attitude toward the handling of club products in the place of some of their commercial products. Such a survey, as the club work is organized at present, may well be based on the county as a unit, the work being divided among the various clubs of the county. When a survey is being made the merchants should be acquainted with the products in which the clubs are specializing.

Advertising.

The next step in developing the market is advertising the products to the consumer. A number of methods have been found useful by various clubs. These include the maintenance of permanent exhibits of canned goods at easily accessible places; the placing of temporary exhibits in various stores, at fairs, etc.; the use in local newspapers of news stories and display advertising; and the securing of the cooperation of the local housewives who will ask the storekeepers for the club products. Where it is essential to incur expense in advertising, one of the best ways to make up the necessary fund is to have each club member contribute one or more containers of products each year.

The club marketing plans developed in North Carolina call for a committee of club members in each community which canvasses housewives for orders and delivers through their grocers. If clubs can not sell all their products locally, they call on the county committee for assistance and in some cases the county committees appeal to the State committee for help.

In Chattanooga, Tenn., the clubs maintain a booth in a central market house with a club member in charge. This member receives a commission on sales. Various other marketing plans are outlined in the publication previously mentioned. Copies of this publication can be had on application to the United States Department of Agriculture, Washington, D. C., as long as the supply lasts.

PREVENT WORMY CHESTNUTS.

To keep chestnuts from becoming wormy and unmarketable, the entomologists of the United States Department of Agriculture advise that the nuts be fumigated with carbon disulphid, which will kill the larvæ of chestnut weevils.

Put the nuts in a large water-tight barrel. Into a pie pan on top of the nuts pour an ounce of carbon disulphid for each bushel. Cover the barrel immediately with a piece of oilcloth or heavy tarred paper to keep in the fumes. Allow to stand under fumigation for 15 to 24 hours. Remove the nuts from the container; air them thoroughly for about one hour. This fumigation kills any worms which may be present and thus prevents their further growth. It will greatly reduce losses in transportation and storage and will not affect the edibility or appearance of the product.

Caution: Carbon disulphid is very inflammable and can be ignited by a match, lantern, cigar, or pipe.

The boar should be kept thrifty during the summer, but should not be allowed to fatten.

If farmers who raise sheep would grade and pack the wool more carefully they would find the increased price would yield a good return for the extra labor.

POTATO GRADES.

Government Recommends Two Grades for Marketing Tubers—Tests Show Benefits.

Two standard grades for potatoes have just been recommended by the United States Food Administration and the United States Department of Agriculture. Results of field tests in grading and packing and of experiments in marketing graded and ungraded potatoes show that marketing potatoes by grades is desirable, practical, and economical.

Further, it has been ruled by the Federal Reserve Board that "potatoes, properly graded and packed and stored in a weather-proof and responsible warehouse, as evidenced by its receipt, would undoubtedly constitute a readily marketable, non-perishable staple."

The present prospect of a very large crop of potatoes, the food supply situation, the overtaxed transportation facilities, and the ruling that Federal reserve banks may make loans against potatoes properly stored in approved warehouses emphasize, says the department, the importance of adopting uniform grades.

Grades Recommended.

The No. 1 grade shall consist of sound potatoes of similar varietal characteristics, which are practically free from dirt or other foreign matter, frost injury, sunburn, second growth, cuts, scab, blight, dry rot, and damage caused by disease, insects, or mechanical means. The minimum diameter of potatoes of the round varieties shall be $1\frac{7}{8}$ inches, and of potatoes of the long varieties $1\frac{3}{4}$ inches.

The No. 2 grade shall consist of potatoes of similar varietal characteristics, which are practically free from frost injury and decay, and which are free from serious damage caused by dirt or other foreign matter, sunburn, second growth, cuts, scab, blight, dry rot, or other disease, insects, or mechanical means. The minimum diameter shall be $1\frac{1}{2}$ inches.

Reasonable tolerances are allowed for variations incident to commercial grading and handling and explanations of the terms "practically free," "diameter," and "free from serious damage" are made in Markets Document No. 7, which may be obtained from the United States Department of Agriculture or from the United States Food Administration, Washington, D. C.

In planning ornamental plantings for home grounds, remember that both the picture you see from the home and the picture the passer-by sees from the street must be considered.

WATER-LOGGED POULTRY

Purchasers Advised to Refuse Fowls Which Have Been Packed in Ice—Food Value and Flavor Lost.

"When you buy poultry which is packed in ice, you probably are paying poultry prices for from 3 to 14 per cent of water soaked up by the bird," according to a statement issued by the United States Department of Agriculture. "This means paying from 25 to 50 cents a pound for from 3 to 14 pounds of water in every 100 pounds of chicken purchased.

"Moreover, a broiler allowed to soak in water or ice will lose about 1.3 per cent of its edible substance, while roasting chickens and fowls lose as much as 1 per cent," the statement continues. "Along with the edible material, water dissolves and washes out from the bird substances on which the fine flavor of the flesh largely depends.

Insist on Dry-Packed Birds.

"The purchaser who wishes to avoid water-soaked chickens and to make sure that the money is paid for poultry and not poultry plus added water, will do well to insist on buying dry-packed and dry-chilled birds. It is always advisable to see the package in which the butcher received the chickens. High-grade, dry-packed, dry-picked birds are commonly sent to market in boxes, not in barrels. Twelve birds are packed in a box which is neatly lined with white parchment paper. Each individual head is wrapped in paper. The feet of the birds are clean and the entrails are always in place. Wet-packed chickens are shipped to market in barrels holding 200 pounds or more. The birds in the bottom of the barrel soak in water that is filthy with dirt washed down from the feet and heads by the melting ice.

"Many persons who have found a bird dry and without flavor attributed this lack of quality to cold storage, whereas the probability is that wet packing is responsible for the fact that most of the appetizing flavor has disappeared. Usually cold-stored poultry which is thawed in the dry, cold air of the ice box is much superior to the water-logged, so-called 'fresh chicken.' "

LEAKS IN GRAIN HANDLING.

Careless Methods Cause Losses of Millions of Bushels Annually.

Twenty million bushels of wheat and proportional quantities of other cereals are annually lost by waste in harvesting and threshing, according to estimates of specialists in the wheat districts of the West. One man in Kansas with a team and fanning mill made $500 in three weeks last season cleaning up after threshing machine settings. Another man with a team cleared $27 to $62 a day by following and cleaning the waste from threshing machines. The losses incident to harvesting and threshing can be avoided largely, it is said.

Keep Machinery Adjusted.

In threshing, special attention should be given to the adjustment of the concaves and of the separating machinery, the specialists advise, to make sure that none of the grain is lost with the straw and chaff. Harvesting machinery should be adjusted so that there is as little loss as possible in cutting. Care should be taken also to harvest all grain in the corners, along the edges of fields, and in lodged spots. More than usual attention should be given to shocking in order that there may be as little waste as possible from exposure to the weather. If at all practicable, the grain should then be stacked as soon as it is cured and shocked. Stacks of bound or headed grain should be built carefully, so that they will shed water.

Keep in mind, say the specialists, that a bushel of wheat will furnish bread for one person for about 75 days.

CARBON BISULPHID FOR RODENTS.

A convenient way to kill woodchucks, prairie-dogs, ground squirrels, and rats living in holes in the ground is to smother them by intruducing a small quantity of carbon bisulphid into the burrows.

To kill woodchucks and prairie-dogs, pour 1 ounce (2 tablespoonfuls) of carbon bisulphid on a piece of cotton waste, or other absorbent material, which should be placed well down into the burrow. For ground squirrels or rats in holes in the ground use two-thirds of an ounce (1½ tablespoonfuls). Close all entrances to the burrow immediately with a shovelful of earth or sod tramped down.

Caution.—Carbon bisulphid, which evaporates rapidly, and is highly explosive and inflammable, should be kept in tightly corked bottles or cans in a safe place and never brought anywhere near the fire. The operator should breathe as little as possible of the fumes, which are nauseating.

The method is not adapted to destroying shallow-burrowing animals such as pocket gophers, mice, or moles.

Where prairie-dogs and ground squirrels are numerous the cost of this method is almost prohibitive and poisoning with strychnin according to Government formula is more economical and is recommended.

Make your front yard in the city beautiful in itself, but try to have it fit in with the landscape scheme of the neighborhood.

POTATOES AS HOG FEED.

Culls Can Be Fed Profitably—Should Be Cooked and Combined with Nitrogenous Feeds.

When cereal foods are high, as now, and potatoes are cheap and plentiful, hog feeding of cull potatoes and any surplus of the poorer grades which may be available is profitable. It is estimated that 4½ bushels of potatoes equal 1 bushel of corn in producing weight gains on hogs. The feeding of marketable potatoes is therefore unprofitable unless corn is worth four and one-half times as much as potatoes. But, as above stated, there are the culls and other unmarketable potatoes which might advantageously be fed to hogs for several reasons—a waste is utilized and more valuable feed is saved, transportation charges on a poor product are saved, and the potatoes marketed bring a higher price than they would if the small ones were included.

Food Value of Potatoes.

Potatoes resemble corn in composition, and this is especially true of sweet potatoes. Both corn and potatoes are poor in protein and rich in carbohydrates, thus they make fat rather than bone and muscle. The potatoes should be boiled or steamed until they form a mealy mash, which should be mixed with some other feed, such as corn meal, shorts, or bran. Only enough water should be added in the cooking to prevent burning and to make a thick mash. While some potatoes may be fed raw, to add succulence to the ration they should be given only at intervals and in small quantities. Too many are likely to cause scours.

A potato ration should be supplemented with feeds rich in nitrogen, such as old-process linseed-oil meal or fish meal. Where sweet potatoes are plentiful and cheap a combination with gluten meal and skim milk makes a good ration.

Effects of Feeding.

In one case of experimental feeding, shoats made 1 pound of gain for each 3.13 pounds of grain when they are allowed to do their own harvesting of raw sweet potatoes. Sweet potatoes are said to be the best root crop for pigs for fall and winter grazing in the cut-over pine lands of the South.

The meat of potato-fed hogs is equal in quality to pork from a grain ration, but the latter is likely to carry a greater finish. After cooling there is no appreciable difference in firmness of the carcass between a potato-fed and a grain-fed animal.

Sheep raisers should get together and decide what breed of sheep is best suited to their locality and then stick to that breed.

FRUIT BUTTERS.

Surplus Fruits May Be Conserved in This Way—Only Equipment Necessary Is a Good Preserving Kettle.

As a final drive on fruit preserving the United States Department of Agriculture urges the making of homemade fruit butters. This is recommended not only to those who grow the fruit but to those in the city who may take advantage of large supplies and cheap prices. In a great many cases it will be possible for city people to get from outlying farms fruit which might otherwise be wasted.

Various fruit butters recommended are apple butter with cider, apple butter without cider, apple butter with grape juice, apple butter with lemons, pear butter, peach butter, plum butter, and Garfield butter made with plums and peaches. With the exception of a good preserving kettle very little equipment is needed for the preparation of such butters.

Apple Butter.

There is no better way to use good apples, says the department, than to make them into butter. The sound portions of windfalls, wormy, and bruised apples may also be used. The better the apple the better the butter will be. In apple butter with cider either fresh sweet cider or commercial sterilized cider should be used, after being boiled down to about half its original quantity. The peeled and sliced apples may be cooked in the boiled cider, or they may be first made into apple sauce, which is then cooked in cider. It usually takes about equal quantities of sweet cider and sliced apples to make butter of the right consistency. In other words, 2 gallons of sweet cider should be boiled down to 1 gallon, and 2 gallons of the prepared apples should be added to it either uncooked or as apple sauce. The two essentials of good apple butter are long, slow cooking—from four to six hours—and frequent stirring. If sugar is used, it should be added after the cooking is about two-thirds done. About 1 pound of sugar is the usual proportion for each gallon of apple butter, but more or less may be used to suit the taste. The butter may be spiced with cinnamon, cloves, and allspice, or with any one of the three, the spices being stirred in when the cooking is finished.

While still boiling hot the butter should be packed in sterilized glass receptacles, or in stone jars, with thorough precautions against spoiling as with any other preserves.

Without Cider.

Good apple butter may be made without cider. In this case enough water is added to make a thin apple sauce. Brown sugar rather than white sugar is ordinarily used. If a grape flavor is desired, it may be obtained by the use of grape juice in the proportion of 1 pound to each gallon of the peeled and sliced apple. There should also be added a cup of brown sugar and one-fourth teaspoonful salt. When the desired thickness is obtained 1 teaspoonful cinnamon is stirred in.

Pear butter is made like apple butter without the cider.

In making peach butter it is desirable to put the peaches into a wire basket and dip them in boiling water for a few seconds until the skin slips; then dip the peaches into cold water, peel them, and pit them. Well-ripened free-stone peaches are best. They should be mashed and cooked in their own juice without adding water, and if butter of a fine texture is wanted the pulp should be put through a colander or coarse wire sieve. To each measure of pulp add a half measure of sugar. Peach butter can be made also from dried or canned peaches. Lemon juice in the proportion of 1 lemon to 15 pounds of peaches may be added to give tartness.

Plum Butter.

Plum butter is made like peach butter, except that the skins and pits are separated by rubbing the pulp through a colander or wire sieve after the plums have been cooked. Free-stone plums, however, may be treated exactly like peaches.

The Garfield butter is made of two-thirds plums and one-third peaches and needs rather more sugar than the plain peach butter.

Farmers' Bulletin 900, "Homemade Fruit Butters," which contains detailed directions for making various fruit butters, may be obtained free from the United States Department of Agriculture, Washington, D. C., as long as the supply lasts.

Clear up Johnson grass, Bermuda grass, and salt grass in order to destroy the desert corn flea-beetles' winter quarters.

The cornfield infested with wireworms should be cultivated as long and as deeply as possible.

"Shall we be more tender with our dollars than with the lives of our sons?"
W. G. McADOO,
Secretary of the Treasury.

SAVE YOUR MONEY TO BUY A U. S. GOVERNMENT BOND

OF THE

SECOND LIBERTY LOAN OF 1917

TO HELP YOUR COUNTRY AND YOURSELF.

LAW NOT SUSPENDED.

Provisions of the Grain-Standards Act Will Be Enforced—Abuses to Be Eliminated.

Reports of an agitation looking to the suspension during the period of the war of the enforcement of the United States grain-standards act and the grading system established under that act have been brought to the attention of the Food Administration and the United States Department of Agriculture. After a conference between officials of those organizations, the following announcement was made:

Official Announcement.

All purchases of wheat over which the Food Administration Grain Corporation has control will be made according to the grades of the official grain standards of the United States from No. 1 to No. 3, and below No. 3 after examination of actual samples of the wheat. The enforcement of the grain-standards act will not be suspended by the Government, but on the contrary the Food Administration and the Department of Agriculture will cooperate in carrying out its provisions so as to obtain the most beneficial results to all concerned. It appears that confusion has arisen on account of the unfamiliarity of many persons in the grain trade with the new standards and also on account of unwarranted practices that have arisen recently, such as the arbitrary assignment of a lower numerical grade to wheat by reason of the presence of dockage, notwithstanding the fact that dockage does not properly enter into the assignment of the numerical grade. Of course, every effort will be made to eliminate these abuses and to bring about the just application of the official standards and to establish fair dealings. It must be remembered that the Grain Corporation is compelled to buy within the limits of fixed prices, and that the Department of Agriculture must see that the standards are correctly applied. Cooperation of producers, the grain trade, and the milling fraternity with the Food Administration and the Department of Agriculture is required in handling the situation due to the war crisis.

Potatoes, Irish and sweet, should be used freely when plentiful, because they are useful vegetables for many purposes. They can be grown in almost all sections of the country, and hence need not be transported long distances; and, furthermore, since they contain much starch, or its equivalent, they may take the place of grains, which bear shipment better and are less bulky.

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., OCTOBER 10, 1917. No. 10

NITRATE OF SODA FOR FERTILIZERS.

Department to Secure Nitrate of Soda and Supply It to Farmers at Cost for Cash—Government Purchases to Be Coordinated—Increase of Price in Chile Without Justification.

Secretary Houston stated to-day (September 26) that the Department of Agriculture has for some time been giving careful consideration to the problem of securing nitrate of soda for fertilizer use. Under a recent authorization of Congress there is available an appropriation of $10,000,000 to be used, at the discretion of the President, to secure nitrate of soda and to supply it to farmers at cost for cash.

It is proposed to coordinate all the Government purchases of Chilean nitrate for this country through the purchasing committee of the war industries board, under the immediate supervision of Mr. Baruch, so that there will be no competitive bidding for this material. This should very much simplify the problem and make it feasible to secure the best possible terms. The price of Chilean nitrate on board ship in Chile has greatly increased within recent months without justification. Shipping rates also have increased. The increase in price is due in part to unfounded statements regarding the demand for Chilean nitrate for munitions purposes and for fertilizers, especially in connection with the $10,000,000 recently appropriated by Congress to purchase nitrate of soda. As a matter of fact, the demands of this country for nitrate of soda will be smaller then heretofore. The Navy already has placed contracts for this material to satisfy its needs for the next 12 months. The War Department announces that practically all the sodium nitrate which it has been planned to procure for the gradual building up of the war reserve already has been contracted for. The quantity which may be purchased for fertilizer use under the special appropriation of Congress will not be an addition to the quantity normally used. Any quantity purchased by the Government and sold to farmers will simply take the place in part of quantities heretofore supplied to them through private agencies. As a matter of fact, unless satisfactory prices can be secured, it is probable that the farmers will not seek as large a quantity of this material as has been used in the last year or two. Some contracts already have been made by farmers for nitrate of soda. In view of all these facts, it is probable that the aggregate demand for the next five or six months will be below the normal. It is certain that unless the market prices, which are now in the neighborhood of $100 a ton, fall, the farmers' demand for nitrate will decrease.

As has been stated, the purchasing will be handled directly through the war industries board. The Department of Agriculture will cooperate with the purchasing committee in the effort to procure nitrate of soda. It is authorized by law to secure facts as to the demand for fertilizers, including nitrate of soda, their supply, consumption, costs, and prices, and the basic facts relating to their ownership, production, transportation, manufacture, storage, and distribution. This inquiry is now being prosecuted through the Bureau of Markets. In connection with this the needs of farmers will be ascertained and all amounts purchased for their use, after the shipments reach the ports, will be taken charge of by the department and will be distributed through the department to farmers at cost for cash. The collections will be made by the department and will be turned into the Treasury. To assist the department in its activities in this direction the services of Mr. Mell R. Wilkinson, of Atlanta, Ga., have been secured. He will be given such assistants as may be needed and will have available the services of the experts of the Bureau of Soils and the Bureau of Plant Industry.

Authority has been given the President, if necessary, to license the importation, manufacture, storage, and distribution of fertilizers, to require the licensees to submit reports, and to permit entry and inspection of their places of business. The President is further authorized, if he shall find that any storage charge, commission, profit, or practice of any licensee is unjust, or unreasonable, or discriminatory and unfair, to cause such charge, commission, profit, or practice to be discontinued, and in lieu of such charge, commission, profit, or practice, may determine what is just and reasonable and his finding shall be prima facie evidence in any court in which proceedings may be brought. It is also provided that licenses may be revoked for cause. If it becomes necessary to exercise the licensing power, the Department of Agriculture, through a special agency, will utilize the services of the licensing division of the Food Administration.

There have been available no thoroughly satisfactory data as to the yields of crops due solely to the application of nitrate of soda, and therefore, as to the price at which farmers can afford to use it. Realizing this fact, the Secretary of Agriculture directed the Bureau of Plant Industry last spring to make 100 experiments. These experiments are being made with corn in 5 Southern States—Virginia, North Carolina, South Carolina, Georgia, and Alabama—in 10 counties in each State, and on 2 farms in each county. It is hoped that the results of the investigation will be available within the next six weeks. When information is secured it will promptly be given publicity.

HOLDING OF LOADED CARS.

Shippers who hold loaded cars at yards while deciding on their final destination contribute importantly to the shortage in transportation according to the Bureau of Markets of the United States Department of Agriculture. Specialists who studied conditions at the Potomac Yards, Virginia, for 30 days last summer, found that 236 cars of perishable commodities were held on the average of 44 hours each by shippers or consignees before issuing orders to move the cars. No car held for less than 24 hours was counted. A car of cabbage was held 78 hours; a car of watermelons, 84 hours; a car of cucumbers, 104 hours; a car of potatoes, 128 hours; and a car of tomatoes, 213 hours.

These facts make clear that shippers through these yards are abusing their diversion privilege and are wasting much car space by not keeping their cars moving. The remedy is to file diversion orders in advance of arrival. As Potomac Yards is only one of hundreds of important diversion points, the waste, the specialists point out, is significant and without compensating advantage to owners.

TOBACCO-WILT CONTROL.

Experiments by Specialists Indicate That Disease Is Best Combated by Crop Rotation.

Crop rotation is the only method which will give satisfactory results in controlling tobacco wilt, it appears from tests conducted over a series of years in the flue-cured tobacco district by the United States Department of Agriculture. By cropping badly infested land for five years with crops not affected by the wilt, the extent of injury to tobacco from the disease was reduced from 80 per cent to less than 10 per cent.

In arranging rotations, the department specialists point out, care must be taken not to grow other plants attacked by the wilt organisms. The plants susceptible to attack which should be avoided in the rotations include tomato, Irish potato, and peanuts. Ragweed, which is very common in the flue-cured district, also is attacked by the wilt and it is important, therefore, that this weed be kept down and, if possible, eradicated. The crops shown by the tests to give satisfactory results in rotations are corn, cotton, wheat, rye (as a cover crop), sweet potatoes, cowpeas, grasses, red clover, and crimson clover. Oats were not included in the tests but it does not seem likely that this crop is affected by the wilt.

Five-Year Rotation Recommended.

The tests made by the Department of Agriculture indicate that on badly infested land the growing of crops not attacked by wilt for four or five years will give better results than only three years of such cropping. The three-year period, however, greatly reduced the amount of wilt. The specialists believe that on badly infested soil a good general rule is not to grow tobacco oftener than once in every five years. After the disease has been brought under control, however, tobacco probably may be grown safely every fourth year. Under no circumstances should two crops of tobacco be grown in succession on infested soil.

To keep the wilt off farms not already infested, it is recommended that seed beds be thoroughly burned to insure complete sterilization and that care be taken not to allow surface drainage from infested farms to reach the seed bed or the tobacco land. Great caution should be used in securing plants or farming implements from farms on which the wilt is present. Tobacco stalks or stems from infested farms should not be used as a fertilizer on healthy soils. Every effort should be made to prevent infested soil or diseased plant material in any form from reaching the farm.

Symptoms of Tobacco Wilt.

Tobacco wilt produces definite symptoms in the leaves, the stalks, and the roots of the tobacco plant. When plants are attacked the leaves droop in an umbrella-like manner and the stalk shows yellowish to black streaks when the bark is stripped. When diseased stalks are cut across with a knife, slimy ooze appears. The disease also brings about decided decay of the root system. The organism responsible for the disease enters the plant through the root and eventually brings about a plugging of the vessels, thus cutting off the water supply from the leaves and causing them to perish.

In the experiments carried on by the Department of Agriculture various acids, alkalis, and neutral salts, including fertilizer materials, were applied to the soil by varying methods and in varying quantity, and a large number of germicides were used. Subsoiling with the plow and by use of dynamite was also employed to see if such treatment would reduce the amount of wilt. In none of these tests were the results sufficiently encouraging to hold out hope of controlling the disease, and crop rotation therefore is believed to be the only practicable remedy.

GOOD MEAT WASTED ON HIDES.

According to reports received by the meat-marketing specialists of the Bureau of Markets, United States Department of Agriculture, a Washington (D. C.) dealer states that 9 steer hides purchased by him carried 79 pounds of waste meat. A Detroit dealer reports that an average of 6 pounds of waste meat was found on 40 cow and steer hides received at his plant, and that in 10 days his men scraped 2,177 pounds of waste meat from hides, or enough to supply low-grade meat to about 5,000 people for one day. Faulty butchering, in addition to causing a loss of the food value of the meat which is wasted, results in a considerable loss of edible fats which remain on the hides.

WASTE OF COTTON SEED.

There is no greater avoidable waste in the South than that of cotton seed rotting at gins and oil mills, according to W. C. Hudson, of Alexandria, La., a former county agent, who says this waste is due to careless handling, particularly at the oil mills.

He then tells how the waste may be avoided by having the cotton dry when it is ginned and by having driers at the mills to dry the seed, or by having it spread out carefully. Ordinarily this seed yields about 40 gallons of oil to the ton of seed, but if the aeed is allowed to rot the oil is inferior and fit only for soap making. The oil meal is also of low grade, and this means a great waste of the good foodstuff in cotton seed—40 gallons of oil to the ton and over 1,000 pounds of meal.

DEHORN THE FEEDERS.

Elimination of Horns Will Pay in Protection to Cattle and Give All a Chance at Feed Trough.

All horned cattle intended for the feed lots next winter should be dehorned as soon as the weather will permit so that the wounds will heal before the cattle are put on full feed.

There are advantages in dehorning cattle that the cattle feeder can not well afford to overlook. It makes the cattle more easily and safely handled in the feed lot and each animal is assured of a more nearly equal chance at the feed trough. Also it avoids the bruised condition of the flesh and torn hides caused by cattle goring each other in the feed lots and in transit to market, as well as excessive shrinkage in transit.

Best Tools to Use.

The most common method of dehorning cattle is to saw the horns off, and for this purpose an ordinary meat saw can be used, though there are saws on the market that are specially designed for the operation. By this method a good clean job can be done on any type of horn, and the wound is left in a condition to heal readily.

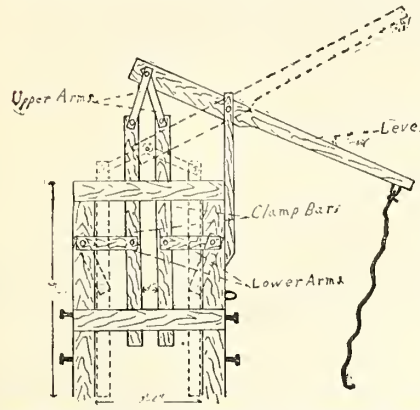
The use of dehorning clippers is becoming more common, especially where a large number of cattle are to be dehorned and where they are dehorned before the horn becomes hard and brittle. The chief objection to dehorning with the clippers is that thin or hard horns are sometimes crushed or splintered, resulting in a wound that heals slowly. This objection is partly overcome by using clippers that are constructed with two V-shaped blades, which, when pressed together bring four cutting edges against the horn, lessening the tendency to crush or splinter the horn.

Dehorning Pens.

A number of methods of restraining animals during the dehorning operation have been practiced. Where only a few head are to be dehorned, the quickest way is to throw the animal to the ground and hold it or tie it securely until the horn is taken off.

When a considerable number of cattle are to be dehorned, it will pay to construct a dehorning chute. Plans of a chute that has proved very satisfactory for this purpose are given herewith. This chute is made narrow enough so that the animal will not have room to struggle a great deal and with a stanchion-shaped head clamp at one end for holding the animal's head. After an animal is in the chute and the head clamp closed a noose should be placed around the neck with a loop over the nose. The head can then be snubbed down to the peg indicated on the side post. This forces one horn forward so as to make it easily removed. After one horn is removed the head should be snubbed to the other side for the removal

of the other horn. A chute of this kind can be constructed at very low cost by using scrap material about the farm. However, material of sufficient strength to hold the

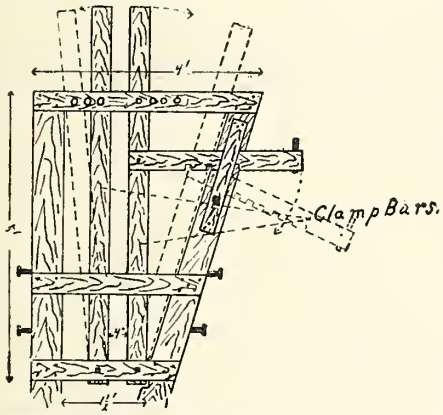


Front view of dehorning chute with clamps closed. Dotted lines show open position.

animal should be used. This chute can be used for vaccinating, branding, and castrating, as well as for dehorning.

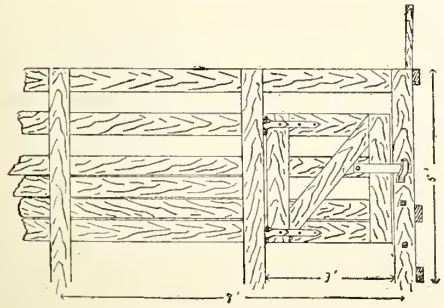
Care of Wounds.

Cattle should never be dehorned during warm weather when there is danger of the wound becoming infested with screw worms. The best time to dehorn is in late fall and



Front view of dehorning chute with sloping side, showing clamps closed. Dotted lines show open position.

early winter or during the cool weather of spring. If the weather is sufficiently cool there is very little danger of the wound becoming infested with screw worms. However, it is best to apply some fly repellent

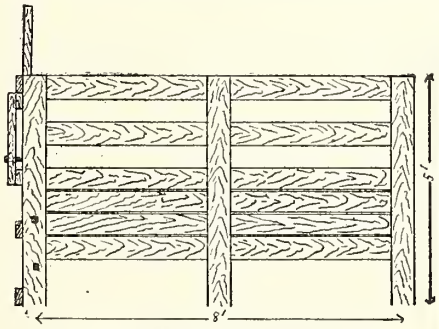


Side view of dehorning chute showing gate.

such as pine tar or one of the coal-tar products to the wound, especially where the cattle are to be turned out on the range and where close attention can not be given to them. If the wound becomes infested with screw worms they should be removed. The worms can be killed by inserting into the wound a piece of cotton that has been saturated with chloroform, or by pouring gasoline into the horn cavities. This will kill the screw worms, after which they may be removed with forceps or a probe or by forcing the animal's head to one side and allowing them to drop out.

Some animals bleed profusely following the dehorning operation, but ordinarily this need cause no alarm, as a clot soon forms and no great amount of blood is lost.

The accompanying plans show the construction of two types of simple and satisfactory dehorning chutes. The dotted lines in both types of chute show the head clamps when open, and the lever in both cases is



Side view of dehorning chute without gate.

used for closing the head clamps after the animal's head is in position. The sides that are shown in the plans can be used for either type. The gate is convenient for letting the animal out of the chute and also for branding and vaccinating.

AN EXPERIENCE MEETING.

Corn-club day in Decaturville, Tenn., on the last Saturday in July found most of the boy members of the club present, and also most of the grown-up farm folks from round about. There were no catchpenny amusements, no program of events. Instead, each boy got up and told about the work he was doing.

It was a succession of leaves read from the notebooks of their own experience, and those who heard said the experiences were worth listening to. A leading farmer said, "It was a great day. This day's work alone is worth all the cost of the county agent."

One boy walked 13 miles to attend the meeting. Another boy who lived 16 miles away wrote that he was sorry he couldn't come. "My pony," he wrote, "has a sore back, so I can't use him, and it's the only one I could get to ride."

Meeting Negro Farmers.

That same night the county agent, W. J. Flanery, was called on to talk to a meeting of negro farmers. They kept him until midnight answering questions. He asked a few himself and found out that 95 per cent of them were raising enough vegetables to keep their families supplied with food till the next crop season and that 25 per cent of them owned and worked their own farms.

TO SAVE CATTLE.

Movement of Stock from Drought-Stricken Portions of Texas to Points in the Southeastern States.

Trainloads of cattle are being shipped from the drought-stricken portions of Texas to other points in the South just as fast as railroad facilities will permit, according to a statement of the Bureau of Animal Industry, United States Department of Agriculture, which has been working to relieve the situation of the Texas cattlemen.

Since July 1 there have been moved from Texas to points in the Southeastern States more than 13,000 head of cattle, and the department expects that by the end of September fully 25,000 head will be so moved. This movement was made necessary because of the drought and other conditions in certain parts of Texas, which threatened the loss of valuable breeding stock. Most of the cattle now being moved are females; practically all were bought outright by farmers and landowners in the new territory. The expense of the work of supervising shipments of these cattle, to the end of September, will not exceed $4,000, which makes the cost incurred by the department for moving the cattle only about 30 cents a head.

Why the Work Was Undertaken.

Because of the lack of rain and consequent lack of pasturage in much of the range region of Texas, the Department of Agriculture undertook to help open up to cattle raisers channels of outlet for cattle which could not be carried on the range any longer. Under the conditions as they have existed in Texas the cattle owners first had to get rid of their older steers, then the younger, then the calves, and finally the cows themselves, which formed the very basis of the herds. The department is doing everything that it can to get these cattle into regions of plentiful forage, and has been using every possible agency; otherwise many would have died of starvation on the ranges. Cattle have gone to Louisiana, Mississippi, Arkansas, Alabama, Georgia, and Florida, and these States have cooperated with the Federal Government in helping to make the movement possible. The authorities in Mississippi at first thought that there were too many cattle within the State, but a survey taken by counties, through the help of county agents, showed that while some counties had an excess of cattle for sale, in others there were many farmers who wished to buy cattle, and a balancing of those for sale and those in demand showed that the State could take a great many more than it had on hand. Many of these came from the Texas supply.

A New Field.

One of the advantages of the work done this year is in showing how the situation may

be handled should similar conditions arise again. The department says that in the long run the cattle industry as a whole will be a decided gainer by the movement of these cattle, which are largely of high grade and in some cases even pure-bred stock, and they have gone to form the nuclei of new centers of cattle raising. They are mainly Herefords, with some Shorthorns and a small sprinkling of Angus cattle. More important to Texas cattlemen than the opening up of new herds is that their attention has been directed to the East as an outlet for their surplus as well as the North.

NEED MORE POULTRY.

Secretary of Agriculture Calls on Poultry Industry to Increase Food Supply.

The Secretary of Agriculture points out the importance of increasing poultry on the farms in the following letter transmitted to the American Poultry Association through Mr. Harry M. Lamon:

I hope that the coming meeting of the American Poultry Association, which you will attend as a representative of the department, will be highly successful and productive of good results. I need not point out that an adequate supply of foodstuffs is essential to the effective prosecution of the struggle in which we are engaged. We must net only supply our own needs but we must endeavor to meet in part the needs of the nations with which we are cooperating. The poultry industry can render very great service to the Nation in this emergency. The production of poultry is one of the best means of bringing about a quick increase in the meat supply of the country. In many sections, particularly in the South, the number of fowls on individual farms can and should be very largely increased. If the improved methods which have been worked out by the experts of the State agricultural colleges, the experiment stations, and the Department of Agriculture, were generally adopted, many of the problems confronting poultrymen would be solved or minimized. The department is cooperating with the industry in many directions and stands ready, of course, to render any assistance it can.

The real cost of foods of similar composition depends for the most part on the weight obtained per unit of cost; for example, a cereal which costs 15 cents a pound and supplies the same amount of nourishment as one that costs 25 cents a pound is a cheaper source of nutritive material, though the latter may be three times as bulky as the former owing to the form in which it is marketed.

STOCK RECEIPTS SHIFT.

Cattle Received at Stockyards Show Increase Over Last Year, Hogs and Sheep a Falling Off.

A record of receipts of cattle, hogs, and sheep at the stockyards of the country shows that there has been an increase in the number of cattle that have come to market in the first eight months of 1917, as compared with receipts for a similar period of 1916. Receipts of hogs and sheep show a decrease for the same period.

Shipments for the month of August, in both years, reflect a like tendency. Figures gathered by the Bureau of Markets, United States Department of Agriculture, from the 46 principal stockyard cities show that 1,705,812 cattle were received in August, 1917, as against 1,527,069 in the same month a year ago. The August shipments of hogs, on the other hand, were only 1,717,655 head for this year, while they were 2,593,537 last year. Equivalent figures for sheep were 1,453,176 and 1,864,815. For the first seven months of each of the two years the figures were as follows, the 1917 receipts being given first in each case: Cattle, 10,679,987 and 8,191,618; hogs, 22,532,927 and 24,408,981; sheep, 7,980,539 and 8,535,535.

Causes of Cattle Increase.

Officials of the Bureau of Markets say that a number of causes have a bearing on the increase in the receipts of cattle and decrease for hogs and sheep. The increase in cattle shipments is in part due to an effort to market the animals because of the high prices that have been obtained for them, coupled with the greatly increased prices of feeds, and the several droughts that have prevailed in the Southwestern section. Some dairy animals have undoubtedly come to market from these causes, coupled with a desire on the part of dairymen to keep only high-producing stock, and to get rid of cattle that will not be profitable as milk producers.

Last year an unusually large number of hogs and sheep came to market in response to high prices, and the receipts at the stockyards so far this year are believed to represent rather a return to the normal movement than a distinct falling off in the supply.

Shifts in Hog Receipts.

In the north-central part of the country the receipts of hogs at most of the packing centers have shown no falling off, and in some cases an increase. Ohio points, and some in Indiana, Illinois, and Iowa, show slight increases in hog movements, but many of the larger centers, such as Chicago, Kansas City, and St. Paul, show decreases, and the aggregate falling off is considerable. Receipts of sheep have shown decreases almost everywhere, but a few places in the far West, notably Denver, and in the Southwest, especially in Texas, have shown decided increases. These increases, therefore, represent range-raised rather than farm-raised sheep.

ERADICATION BOOMING.

Half a Million Southern Herds Being Dipped Regularly in 20,000 Vats.

With active work for tick eradication proceeding in 332,251 square miles of southern territory, the United States Department of Agriculture and State officials are decidedly hopeful that their cooperative goal—"a South entirely free from the cattle fever tick in 1921"—will be attained. Twenty thousand eight hundred and eighty-two dipping vats were in commission in August, and during that month 522,541 different herds, comprising 4,319,554 cattle, were being dipped regularly every two weeks. A force of 1,901 Federal, State, and county inspectors were actively employed in the work of getting rid of the cattle pest. When the territory now being worked is entirely freed of ticks, there will remain only a comparatively small quarantined territory in the entire South.

Mississippi in the Lead.

Mississippi led with 187,330 herds and 1,373,952 cattle dipped regularly in 6,583 vats. This work, it is believed, shortly will clean out the tick from 45,176 square miles of territory and free the entire State from quarantine this year. Louisiana was second in number of cattle dipped and Alabama third, each dipping over 660,000 animals. Arkansas was a close fourth with 648,000 animals dipped.

Texas, where dipping recently has become active, is handling 295,592 cattle, but leads all the States in area handled, with over 65,000 square miles being worked. Florida, where cattle are not so numerous, is second in area covered, with 53,111 square miles. One of the most hopeful signs is that the State legislatures of Georgia, Mississippi, Louisiana, Texas, and Arkansas have made dipping of cattle to eradicate ticks compulsory.

The rough part of grains has two important uses. It contains mineral and other substances which are useful in keeping the body healthy; it adds bulk to the food, and so helps along normal digestion.

RAISING GUINEA FOWLS.

Prices at Eastern Markets Should Increase Popularity of This Fowl Among Farmers.

Guinea fowls, which have suffered unpopularity with farmers because of pronounced propensities for noise making during the sleeping hours of humans, are likely to rise above this objection in view of a steadily increasing demand for their delicious flesh, in the opinion of a poultry specialist of the United States Department of Agriculture. With eastern markets offering 75 cents to $1.50 a pair for these fowls, guinea-fowl raising now is a profitable side line on eastern farms, and may offer opportunities to the commercial poultryman in a few cases. In Farmers' Bulletin 858, "The Guinea Fowl," the specialist discusses the guinea business from the starting of a flock to marketing the produce, which is largely the meat.

Demand is Increasing.

The increasing demand for guinea fowls, the specialist says, comes from hotels and restaurants in the large cities, which are always eager to buy prime young stock. These they particularly like to use as a delicacy in banquets and club dinners, guineas being a good substitute for game birds such as grouse, partridge, quail, and pheasant. The present supply comes largely from small farm flocks of 10 to 25 fowls. Such flocks require little care and expeuse to raise; consequently the marketing price is largely profit.

And as for that undesirable cry of the guinea fowl, the department specialist admits that this is a rather objectionable habit, but declares that it might often be listed as an asset. It gives warning of marauders in the poultry yard and also, backed by a pugnacious disposition, constitutes an effective show of fight against hawks and other enemies. In fact, says the poultryman, some farmers raise a few guinea fowls with their turkeys and allow them to roost together so that a warning will be given if any theft is attempted during the night.

Guinea fowl raisers who are near the large eastern markets or who have developed a trade among private customers are now receiving prices that make this industry very profitable. One poultryman near a New England summer resort has raised as many as 400 guinea fowls in one season, selling them in August when they weighed about 1 pound each at $1.25 a pair. Wholesale prices in New York usually range from 75 cents to $1 a pair for dressed spring guineas weighing 2 pounds to the pair, and from $1.25 to $1.50 a pair for those weighing 3 to 4 pounds to the pair. Old guinea fowls are not wanted and seldom bring more than 50 or 60 cents a pair.

Varieties of Guinea Fowls.

Of the three varieties of guinea fowl—pearl, white, and lavender—pearl is by far the most popular. It has a purplish gray plumage regularly dotted or "pearled" with white and is so handsome that frequently the feathers are used for ornamental purposes. Breeding stock of the various varieties usually sells for $2 to $3.50 a pair, or from $3 to $5 a trio. Eggs from pure-bred birds for hatching can be obtained for 75 cents to $1 for 15. During the last few years a limited market for guinea eggs has developed among commercial hatcheries which have an outlet for a few day-old guinea chicks along with their ordinary chicks, ducklings, goslings, and turkey poults. While guineas cau be kept in the best condition upon free range, they can be confined if necessary and satisfactory results obtained.

Marketing Guinea Fowls.

The marketing season for guinea fowls is during the latter part of the summer and throughout the fall. At this time the demand in the city markets is for young birds weighing from 1 to 2 pounds each. At about 2½ months of age guineas weigh from 1 to 1½ pounds, and at this size they begin reaching the markets in August. As the season advances the demand is for heavier birds.

The usual practice in marketing game birds is to place them on the market unplucked, and in most markets guinea fowls are sold in this way. They are more attractive with the feathers ou and sell more readily. When dressed the small size and dark color of the guinea are likely to prejudice the prospective customer, who may be unfamiliar with the bird's excellent eating qualities. For hotel and restaurant trade, however, guinea fowls should be dressed in the same way as common fowls. Before shipping any birds to a market it is advisable to inquire of the dealer to whom they are to be shipped whether the feathers should be removed.

If the guinea fowls are to be marketed with the feathers on, all that should be done is to bleed them by severing the vein in the roof of the mouth, allowing them to hang head downward until bleeding is complete. If the feathers are to be removed, this should be done by dry picking. The vein in the roof of the mouth is severed first, to insure thorough bleeding, and the knife then thrust through the groove in the roof of the mouth into the brain. When the brain is pierced the feathers are loosened by a convulsive movement of the muscles and can be removed easily.

When hogs are pasturing on a forage crop, restrict the area so that they will eat it off rapidly.

HORSE-BREEDING HINTS.

If Brood Mares Are Used as Work Animals on Farms They Will Be Source of Two Profits.

A brood mare on the farm is a source of two profits. It is not uncommon to hear of some remarkable mare on a particular farm that, besides doing her share of the farm work, has raised many hundreds of dollars worth of colts. It is seldom that there is more than one such mare mentioned. To obtain the greatest returns, nearly all the work animals maintained on the farm should be mares of this character, says a new Farmers' Bulletin of the United States Department of Agriculture.

"Horses always are needed to do farm work," says the bulletin, "and generally they can be raised from farm mares more cheaply than they can be purchased, while the surplus, if of proper breeding and liberally fed on suitable balanced rations, will find ready sale at good prices because they will have the characteristics that suggest the ability to do work satisfactorily and profitably."

Brood Mares Do Double Duty.

It is pointed out that breeding working mares places double duty on them, consequently they must be robust individuals properly conformed, and must be given good care and treatment. With two sources of profit from one animal, farmers can well afford to pay more for such stock, feed it more heavily, and give it special attention. The small farmer is most likely to get the best results from such a plan because he usually works his own teams or is in a position to watch them closely and see that they are not ill treated.

The two outstanding requirements in profitable farm mares are that they be breeders and workers, says the bulletin. Any mare that is not at least of high grade should not be considered. The particular breed or grade would depend largely on local markets. In a locality where there is a local horse market it is generally advisable to breed the prevailing type, since by so doing, sales are more easily made and the services of high-class stallions are practically assured.

Send for Free Bulletin.

The bulletin already mentioned, Farmers' Bulletin 803, entitled "Horse Breeding Suggestions for Farmers," contains practical information for the breeding and management of mares, also the care and feeding of foals. Special directions are also given for the feeding and management of young horses. This bulletin may be obtained free upon application to the Department of Agriculture, Washington, D. C., as long as the department's supply lasts.

RECLAIMING THE SWAMP

Financing Drainage Districts—Funds Usually Obtained by Issuing Bonds.

To impose upon each tract of land included within a drainage district its proportionate share of costs, the drainage laws provide for a disinterested board to determine the benefits which will accrue to each tract from the construction of the improvements. After affording the landowners an opportunity to be heard the assessments are amended, if the court deems amendments necessary, and confirmed. These confirmed assessments form the basis for levying taxes. As soon as the cost of constructing the improvements is determined, the district officials levy sufficient taxes to meet these costs.

Taxes to Pay off Bonds.

Within a certain time the landowners may pay these taxes. All taxes remaining unpaid after the expiration of this time are paid usually in a series of annual installments, the last payment being deferred anywhere from ten to twenty years. As it is necessary to have money to proceed with construction, bonds are issued to cover unpaid taxes. These bonds are of the serial type, bear interest payable semiannually, and are arranged so that a number equal in amount to the taxes collected each year are paid off. As these bonds draw interest, landowners who fail to pay their taxes within the prescribed time have their taxes increased by the amount needed to pay the interest on the outstanding bonds. As the final installment of taxes can not be paid off until the last series of bonds mature, landowners have found it cheaper in some sections to borrow money on short terms and pay their drainage taxes within the prescribed time.

Safeguard the Issuance of Bonds.

When it is proposed to issue bonds an effort should be made to secure as wide competition as possible. This can be accomplished by advertising in financial papers and by corresponding with responsible institutions handling drainage bonds. Under no circumstances should negotiations be limited to one house. Agreements for the bonds should not be made with any house until a number of houses have been consulted. The high cost of negotiating with one house only is shown by a district in which the improvements did not cost more than $78,000. The bond house insisted the bond issue should be $108,000. This meant interest on an unnecessarily large amount. Further, the proceeds of the bonds were to remain with the purchasing house until used, subject to be drawn upon by the district not to exceed $4,000 per month. No interest was paid the district for these funds, but in the meantime the bonds were drawing 6 per cent interest which the district had to pay. As the bonds were sold eight months before construction work was commenced, the bond house had the use of the whole issue, $108,000, for that time without paying a cent for it. Added to this the district had to pay the cost of printing the bonds and the fee of the attorney employed by the bond house to pass on the legality of the bonds.

When bonds are sold the proceeds should be deposited with an institution which will pay interest for the use of the money. An indemnity bond of a responsible guaranty company should be required. Through lack of care along this line, the department has been informed that one district which deposited $330,000 with a bank lost $300,000; another district lost $90,000, and another $60,000.

Avoid Injustice to Landowners.

When bonds are issued, if the first installment of principal does not fall due until several years after the date of issue, the landowners should be required to pay taxes sufficient to meet interest only. In some districts, bonds having the first instalment of principal falling due three years from date of issue and the last ten years, are issued, but the landowners are required to pay not only interest during the first three years, but also one-tenth of the principal. This is unjust to the landowners, and especially so in cases where the county treasurer acts as treasurer of the drainage district and deposits all receipts with the county moneys. If the money were deposited so that the district would get the interest less injustice would be done.

90 BUSHELS OF OATS PER ACRE.

Ninety bushels of oats to the acre is the record made this year by Carl Vrooman, Assistant Secretary of Agriculture, on one of his farms at Chenoa, Ill. The average for all the oats harvested on the Vrooman farms this year was 73 bushels per acre. The average production of oats per acre for Illinois for the past 10 years is 33.1 bushels. The fact that Mr. Vrooman was able more than to double this average on his entire acreage and almost to treble it on one field, it is pointed out, is proof of the efficacy of the methods recommended by the United States Department of Agriculture. All of the oats were grown in accordance with methods approved by the department.

The brood sow and her litter should have plenty of exercise but the pigs should be protected from cold rains.

SAVE THE SOWS.

Suggested as a Slogan for Farmers Who Wish to Prevent a Threatened Meat Shortage.

Selling a brood sow at this time, according to the United States Department of Agriculture, is like killing the goose that laid the golden eggs.

When pork is selling at 18 cents or more a pound on the hoof, the hog breeder may be tempted to turn into cash all that he can sell; yet the department points out that the value of a brood sow which will produce such high-priced offspring is proportionately increased and she should be kept as the source of further and future profits.

Since the beginning of the war the number of swine in all countries has decreased, and the decrease has been marked in some of the belligerent countries. In France, for example, in the three years just before January 1, 1917, the number of swine decreased 38.12 per cent; during 1915 the number in Germany decreased 31.47 per cent.

Situation Critical.

Breeding stocks are being depleted, and the department says that the situation is already critical and threatens to become very serious if the country continues to be drained of its meats. Hogs furnish meat more quickly and cheaply than other stock can; the meat shortage, therefore, can most readily be met by swine production. It has been calculated that the possible increase from one sow is 1,002 pigs in four years, on the supposition that all litters consist of six pigs, that all live, that half are females, and that each gilt should farrow at one year and every six months thereafter.

Cut Feeding Expense.

Another cause of the depletion of breeding stocks is probably in the high cost of feeds. While concentrated feeds have gone up, the department says that some of the expense of carrying breeding stocks may be cut down by the use of green fall forage crops, pasture, alfalfa or clover hay. Brood sows may be maintained in fair condition at comparatively little expense by the use of such feeds. By sowing in the corn, or as a cover crop on land which is likely to wash, sowing rape, or planting a root crop, the cost of wintering sows may be reduced. In brief, the department strongly recommends a campaign to save the sows as one means of helping to meet the threatened meat shortage.

One rat will eat or spoil 4 bushels of grain a year. It costs $2 or $3 a year to feed a rat on your place.

SCHOOL LUNCHES.

Foods That Are Both Nourishing and Palatable Should Be Provided to Meet Body's Needs.

Don't let the school lunch be merely something which will fill the lunch box in the morning and be only a sop to stay the kiddies' appetites from noon until night. Make it a real contribution to the food which the children require to meet the needs of their growing bodies and active brains—to satisfy their appetites and keep them in health.

These are the suggestions of home-economics specialists of the United States Department of Agriculture, now that millions of the future citizens of the country are again eating their midday meals from box, basket, bag, or confectionery shop instead of from the family table under watchful parental eyes.

Expensive Foods Need Not Be Used.

The preparation of luncheons which will fill the needs of the child's body does not mean the use of more expensive foods or the expenditure of greater effort, the specialists point out. In many cases both expense and work will be lessened. What is needed for the preparation of more satisfactory lunches is merely that parents and "big sisters," or whoever fills the lunch box, shall inform themselves of certain facts in regard to the choice and combination of foods. The need in many cases is for neither more nor less food but for the representation of needed food groups. The necessary facts are set out plainly in Farmers' Bulletin 712, "School Lunches," which may be had free so long as the supply lasts by application to the United States Department of Agriculture, Washington, D. C.

The following suggestions are among those made in the bulletin for well-balanced lunches to be carried to school.

Basket Lunches.

1. Sandwiches with sliced tender meat for filling, baked apple, cookies, or a few lumps of sugar.
2. Slices of meat loaf or bean loaf; bread-and-butter sandwiches; stewed fruit; small frosted cake.
3. Crisp rolls, hollowed out and filled with chopped meat or fish, moistened and seasoned, or mixed with salad dressing; orange, apple, a mixture of sliced fruits, or berries; cake.
4. Lettuce or celery sandwiches; cup custard; jelly sandwiches.
5. Cottage cheese and chopped green-pepper sandwiches, or a pot of cream cheese with bread-and-butter sandwiches; peanut sandwiches; fruit; cake.
6. Hard-boiled eggs; crisp baking-powder biscuits; celery or radishes; brown-sugar or maple-sugar sandwiches.
7. Bottle of milk; thin corn bread and butter; dates; apple.
8. Raisin or nut bread with butter; cheese; orange; maple sugar.
9. Baked bean and lettuce sandwiches; apple sauce; sweet chocolate.

ADVISER IN POULTRY EXTENSION.

Mr. John H. Robinson, Reading, Mass., has joined the staff of the Bureau of Animal Industry as an adviser in the poultry extension campaign of the Animal Husbandry Division. Mr. Robinson is one of the leading authorities on poultry husbandry, with a life-long experience as an author and breeder. He has entered on his new duties.

POTATOES WITH MEAT.

Scientific Basis for This Combination—Not a Mere Food Prejudice.

Meat and potatoes are a good food combination, and may be a better diet than bread and meat, according to the United States Department of Agriculture. At this time, when a plentiful supply of potatoes makes them cheap, and when wheat and flour are high, the average family, says the department, may find it wise to eat less wheat foods and to use potatoes instead. Potatoes at $1 a bushel give more energy and good mineral bases than bread at 5 cents a half-pound loaf.

Mineral Content of Potatoes Valuable.

Most persons like potatoes with meat, and they furnish valuable starch; but it is pointed out that mere starch is not all that is needed, and that the mineral content of potatoes is of value in counteracting the acid-forming substances in meat. These acids are present also in cereals, while vegetables, fruit, and milk have an excess of neutralizing alkalis. Therefore potatoes are better with meats than are rice, bread, and macaroni.

Furthermore, potatoes assist in regulating the digestive tract to a greater extent than white flour, macaroni, and polished rice. Potatoes may be added to the diet in bread itself by mixing a portion of finely mashed potatoes with flour.

Plowing kills wireworms by destroying their food supply and interfering with their preparations for winter.

LIGHTNING RODS.

Weather Bureau Gives Specifications for Installing Protective Devices on Farm Buildings.

Lightning rods, according to the Weather Bureau of the United States Department of Agriculture, are worth while for much more than just to make fearful folks feel comfortable during a thunderstorm. It goes on to say that with good lightning-rod installation they not only feel but are more secure, and that protection against lightning is generally thoroughly justified for farm buildings.

In a bulletin just published the department gives specifications for installing lightning rods. These specifications are meant not so much to enable the householder to construct his own protective system as to make it possible for him to understand and inspect adequately the work of installation as done by an expert.

Copper-cable installation is recommended as the best, but it costs the most. Competitive bids should be secured if the installation is to be extensive.

A few of the main points to be considered are: Conductors should be installed in straight runs, and when bends are necessary they should, if practicable, not be abrupt. Changes of direction should preferably be made in large-radius curves—that is on curves with a radius of a foot or more. Insulators should not be employed, because a good electrical connection with the wet roof and walls of a building helps to conduct the discharge to the ground harmlessly. Along ridges and flat roofs the aerials, or upward-pointing conductors, should be not more than 25 feet apart; steeples and towers, because of their prominence, should be given extra protection.

The most important part of the work is the grounding of the conductors, or their electrical connection to permanently moist earth. Ample metal plates, or pipes, etc., are buried in the earth and permanently and thoroughly connected to the conductors on the building, and this metal in the ground should be of a noncorrosive type, such as copper, bronze, or aluminum.

Steel towers, such as those which support windmills, do not require special protection, as a rule, because they are constructed of metal and are well-grounded through the pump. Deep-rooted trees are some protection to buildings near which they grow; on the other hand, it is recommended that especially valuable large trees might well be rodded.

Farmers' Bulletin 842, "Modern Methods of Protection Against Lightning," will be sent free to all who will apply to the United States Department of Agriculture, Washington, D. C.

HERE *for* OVER THERE

Sense of Personal Participation in Winning the War Will Be Had by Making Liberty Bond Investments

"Over there" we have our boys in khaki. They are in camp and cantonment. They have responded to the call.

"Over here," what are you going to do?

All may not go to the trenches. And yet to an American citizen nothing could be more distressing than the thought of not serving his country at this time. The Liberty Loan offers to every individual an opportunity of being of some assistance—the privilege of playing a part. The firing line is no farther than the nearest bank. To buy a Liberty Bond is to contribute directly, specifically, effectively toward America's victory. To buy a Liberty Bond is to deliver a more effective blow in defense of American rights and of the larger freedom. Every dollar you so invest is a shot at militarism.

Liberty! Men fight and die for it, sacrifice every penny of worldly wealth for it. But in Liberty Bonds Uncle Sam seeks no gratuity and asks no sacrifice. He offers an investment that will pay you 4 per cent interest. Your money, so invested, will be used to win the war, and your country returns you your money—with 4 per cent.

It is to prove that we are a free nation that we are at war with Germany. It is to live the kind of lives we have determined to live, to have the kind of institutions we desire, without restraint or dictation of Prussian autocracy that we are at war with Germany. It is because Germany made war on us that we are at war with Germany. We were patient and long enduring while Germany committed hostile acts against us for over two years, plotting against us, practicing duplicity, and destroying the lives and property of our citizens. When the final challenge was flung in our faces it was necessary for us to accept that challenge or to cease to be a free nation; to confess that our only rights were those Germany would allow us to have or to stand forth boldly, free people forced to fight for a righteous cause, and join with the other liberty-loving nations of the earth to end the reign of brutality, despotism, and autocracy. We could only make one choice. We could not "choose the path of submission and suffer the most sacred rights of our Nation and our people to be ignored or violated."

For us not to win this war will mean that every landmark of liberty has been destroyed; that all in vain have been the Anglo-Saxon struggles for free institutions and liberty; that the Magna Charta and the Declaration of Independence were not written with enduring words; that the French Revolution was but a will-o'-the-wisp of democracy.

Far off in his quiet, peaceful community the farmer may feel, despite his production and conservation, a sense of aloofness from war activities. The thought will come to him that his personal participation and contribution, while important, are not sufficiently direct. For no man can feel that he has properly responded to his impulses of patriotism unless he has contributed, actually, directly, personally toward the winning of the war. The Liberty Loan offers the opportunity of such a response. Every farmer may go to the front, by going to the bank and buying a Liberty Bond. He is not GIVING the Government anything. He is LENDING his money to the Government. He is trusting the Government for what he stands for. His dollars, so used, will bring victory.

Not only would we have sacrificed our honor and independence, but disaster to the farmers and to all American people would have followed our tame submission to that order. We have met the challenge of the German Imperial Government and money is necessary to create, coordinate, and bring into action the forces that mean victory. An overwhelming subscription to the Second Liberty Loan—to which subscriptions may be made until October 27—not only will enable our Government to prosecute to the fullest extent the just war we are now engaged in, but it will prove to the world, as the President has said, that the heart of the country is with our fighting men and with our country's cause.

Every bank in the country is expected to arrange for the purchase of bonds on easy weekly and monthly installment plans. Bonds will be issued in denominations of from $50 up.

The Liberty Loan appeals, paramountly, to patriotism, and yet, merely as an investment and without consideration of other matters, the bonds offer attractive opportunities. The bond is a sure investment. For many persons small bonds will mean the start of thrifty savings.

The Liberty Bonds are as good as cash at any time and afford the best possible security for loans for carrying on farm operations. Farmers may serve the Nation as well as themselves by buying Liberty Bonds. Will you help to win the war!

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., OCTOBER 17, 1917 No. 11

THE LIBERTY LOAN AND THE FARMER

By D. F. HOUSTON, Secretary of Agriculture

IT is every citizen's duty to purchase a Liberty Bond if he is in a position to do so. Every patriot will regard it as a privilege to participate in the Liberty Loan. He will thereby contribute directly and effectively to the successful prosecution of the war which Germany has forced upon us. The Nation's task is a serious one. It intimately touches each of us. It faces you and me. If we do not win this war, we must prepare ourselves for grave changes in our institutions and to lead a different sort of life from that which we had planned to live—from that which our forefathers died to give us the right to live. We shall indefinitely face the interference of the Prussian autocracy or bear permanently the intolerable burdens of militarism. To win this war we must have both men and money. I know that every farmer wants to do all in his power for the Nation in this day of trial. He will not only labor to produce the necessary foodstuffs but will also generously contribute of his means to make it possible for the men at the front to achieve victory. I am confident that the farmers of the land will not permit any other class to take the leadership in supporting the Government in this crisis, financially or otherwise.

We are at war with Germany because Germany made war upon us, sank our ships, killed our citizens, and plotted against us while professing friendship. We were patient till offenses became so flagrant and insults so intolerable that it was merely a question whether we would admit that we were no longer a free Nation or accept the challenge of the war-mad, hypocritical, and mediæval Prussian militarists. There was one choice we could not make—we were incapable of making. We could not "choose the path of submission and suffer the most sacred rights of our Nation and our people to be ignored and violated."

We are defending our rights as a free Nation. We are resolved that there shall be an end of brute force in international affairs. What Germany's victory would mean to the world is plain. There would be no right except might, no peace save at the price of humiliations too bitter to be borne. Small nations could not exist. There would be no sanctity to a pledge, no solemnity to a covenant. With the dominance of Prussian militarism, the Anglo-Saxon struggle for free institutions and liberty, persisting from Runnymede to Yorktown, with its Magna Charta, its Bill of Rights, and its Declaration of Independence, will have been in vain. It is to prevent this, to defend our rights, and to make possible an orderly and just peace in the world that we are at war. The Nation calls on its citizens for high and noble service. On some it calls for service in the field; on others for service at home; on all, it calls for financial support. I am confident that the farmers of the Nation will eagerly respond to the call for subscriptions to the Liberty Loan.

MARES IN FOAL.

They Need Exercise and Good Feed to Keep Them Healthy and to Insure Strong Foals.

The mare will be healthier and the foal stronger at birth if she is used at slow, light work nearly every day. Also parturition will be easier. If it is not possible to work a mare, she should in the summer be turned in an open pasture, where she can get exercise, fresh air, and nutritious feed. Her feed should supply the demand for the maintenance of her own body and also for the development of the fetus. The ration, therefore, should contain a little more protein and ash than that demanded by a working gelding. The proportions of these should be increased slightly toward the last of the pregnant period. If the mare is idle in winter, most of the feed may be roughage, but a heavier ration must be fed when work is done. The quantity of feed is determined by the size and condition of the animal, whether thin or fat, sick or well, by the appetite, by the amount of work done, by individuality, condition of the droppings, and whether the animal is easy or hard to keep. The following suggestions for feeding mares in foal are from Farmers' Bulletin 803, "Horse Breeding Suggestions for Farmers," recently issued by the United States Department of Agriculture.

Grains.

Oats is the best grain for the horse; it is a light, palatable, and balanced feed. Corn is a good grain, but is used to better advantage if it forms only from one-third to one-half of the grain ration of the brood mare. If wheat is fed, it must be given ground and in small quantities. Barley is a good horse feed; it is more bulky than wheat and nearer like oats than corn in composition. Barley is often cooked and fed once or twice a week in the evening for its medicinal qualities. Bran is an almost essential horse feed. It is a regulator and a preventive of overfeeding. It is bulky and palatable and lightens the ration. Soy beans and cowpeas are relished by horses and when accessible will serve as a useful addition to the grain feed for mares in foal. They are relatively rich in protein, and consequently combine well with corn.

Roughage.

Timothy hay is a popular roughage for horses. Brome grass makes good hay which is equal to timothy hay in feeding value. Orchard grass, if cut in early bloom, is equal to the best of the hay grasses, and carries considerably more crude protein than timothy. Meadow fescue is not so valuable as timothy for horses. Sudan-grass hay is a safe feed for mares, and numerous native prairie grasses furnish hay that is equal to timothy. Clover hay is likely to be dusty, but it has great fattening qualities. Millet is not a safe feed for mares in foal. Corn fodder frequently is used to feed idle horses in the winter, but there is not enough nutrition in it alone for mares in foal. The same thing is true in a greater degree of straw. If either is fed, good quality hay also should be fed. Unthreshed cowpea or soy-bean hay is also a valuable roughage which is relished by horses. Even the threshed hay contains considerable nutrition. It should not be fed to brood mares if it contains any mold. Alfalfa hay makes an excellent feed for mares if it is fed once a day and timothy or corn fodder given at the other feeding. Occasionally alfalfa hay is not properly cured, causing it to mold badly, in which case it should not be fed to the horses. Farmers have reported occasionally that alfalfa causes the kidneys to act too freely, but it is likely that this trouble will not be noticed if the alfalfa does not make up over one-half of the roughage.

Succulence.

Succulent feeds are those which are juicy, and are easily assimilated. Such feeds have a cooling, laxative effect on the digestive system and stimulate appetite. The most common succulent feeds on farms are grass, carrots, rutabagas, sugar beets, and silage. Grass, although of a succulent nature, is generally used as the entire ration through the summer if the mares are idle. If they are worked, grass usually forms a supplement to the hay and grain.

REDUCE EGG LOSSES.

Big Percentage of Egg Loss May be Saved Through Organization of Egg Circles.

If farmers would realize that the annual value of the country's egg crop is equal to the average value of its annual wheat crop—approximately $600,000,000—and that nearly 8 per cent of the eggs marketed are lost through spoilage or breakage, the industry undoubtedly would be put on a more businesslike basis, says a Farmers' Bulletin of the United States Department of Agriculture, The Community Egg Circle, recently reprinted. Improper handling between the farm and the market, the bulletin declares, is responsible for a large part of the loss. This loss, it is suggested, could be greatly decreased if farmers would cooperate more generally and market their eggs through community egg circles. These organizations take care of the frequent collection and the proper packing and marketing of the eggs of members, attend to accounting and making collections, establish standards, encourage the raising of better breeds of poultry, the use of improved methods, and the production of infertile eggs.

The bulletin tells farmers how to go about the formation of a community egg circle and prints a suggested constitution and by-laws for such an organization. Copies of the bulletin may be had free, as long as the supply lasts, by application to the United States Department of Agriculture.

PINK BOLLWORM SITUATION.

Danger Believed Past That Cotton Pest Will Become Established.

It is believed that there is no longer danger that the pink bollworm will become established near Hearne, Tex., following its discovery in a cotton field at that place some weeks ago. This opinion was announced by the United States Department of Agriculture to-day. Twenty-five entomologists of the department and Texas, in charge of a force of 400 laborers, were at work around Hearne for a week and a half. They uprooted and burned all cotton from 20 fields aggregating 105 acres in a radius of nearly half a mile of the Hearne oil mill, and carefully examined growing cotton over a much larger area. It was from infested seed brought by the Hearne mill from Mexico that the insect found in an open field is supposed to have escaped.

Only Two Insects Found.

In addition to the first insect discovered in an 8-acre field, a second was found during the clean-up operation in a near-by field of 22 acres. No other pink bollworms were encountered, and it is confidently believed that the infestation did not spread beyond the two fields.

The labor employed in the destruction of cotton around Hearne was paid for by the Federal Horticultural Board. Farmers were reimbursed for the destroyed crops from a fund made up by public-spirited planters and business men of the neighborhood.

Situation Now Favorable.

The situation is now believed to be so favorable in the vicinity of Hearne that the 25 entomologists who were at work there were diverted in small groups to the 10 other oil mills in Texas which received cotton seed from Mexico prior to the enforcement of the quarantine the 1st of November, 1916. These specialists will conduct in the vicinity of the other mills intensive examination similar to that made near Hearne. If infestation is found, the fields will be destroyed like the infested fields near Hearne. Even if no infestation is found, the fields nearest the cotton mills will be cleaned up as a measure of precaution. All cotton and seed of the present year's crop from fields in the vicinity of the 11 mills will be so treated as to eliminate danger of spreading pink bollworm infestation.

SWEET-POTATO SEED.

Locate Disease-Free Hills and Reduce Loss from Black-Rot, Stem-Rot, Wilt, and Blue-Stem.

Select your seed sweet potatoes in the fall—when you are digging and can locate disease-free hills—is the advice of the United States Department of Agriculture. Such seed selection will help your next crop escape diseases which each year destroy from 10,000,000 to 15,000,000 bushels of sweet potatoes. A little extra care in handling your market crop and providing proper storage will avoid important wastes this year.

When the potatoes are dug, the seed for next year's crop should be saved. Split the stems down to the roots and take seed potatoes from the best-yielding hills where the entire hill is free from black-rot, stem-rot, and other diseases. Plants with stems blackened inside have stem-rot, wilt, or blue-stem. Any sweet potatoes with nearly round, sunken spots on the surface should be discarded. Such potatoes probably have black-rot.

Potatoes with other types of wounds on the surface and with rotted ends should not be taken for seed. Other diseases may be harbored in such spots and may transmit the disease to the crop next year.

How to Handle and Store.

Farmers should provide themselves with proper storage facilities. For specifications for storage-house construction, write for Farmers' Bulletin No. 548, Department of Agriculture, Washington, D. C. When the sweet potatoes are dug they should be handled with eare so as to avoid bruises in which disease germs often gain a foothold. A barrel of sweet potatoes is often worth as much as a barrel of apples, but they are seldom handled in the same careful way.

The seed and, in fact, all sweet potatoes should be held at a temperature of 85° during the sweating period, with free ventilation of the storage room. The temperature should then be lowered gradually to 50° or 55° F. and the sweet potatoes kept at this temperature in a well-ventilated room.

For information on diseases of sweet potatoes read Farmers' Bulletin 714.

NO STORAGE LIMIT ON SEED.

Holding Good Wheat and Rye Seed for Next Year's Crops Assured.

Cooperative steps taken by the Seed Stocks Committee of the United States Department of Agriculture and the Food Administration Grain Corporation to assure the holding of sufficient good seed wheat and rye to sow next year's war crops have been anuounced recently.

The corporation will exempt from its 30-day storage limitation lots of grain examined by the committee and found to be good for use as seed. Such lots may be kept for bona fide seed purposes until the end of the next seeding season. The corporation has issued blanket licenses for storage of seed grain, which apply automatically to specific lots when the committee approves them. Seed so held may be sold at not to exceed 15 per cent over the selling price of No. 1 wheat at the elevator where it is stored.

Cooperation is Urged.

The department is urging operators of elevators and warehouses to cooperate fully in the endeavor to assure through this arrangement an adequate supply of high-grade seed for use next spring.

For the most part, the work of the department and the Food Administration will relate to spring wheat, and only in special cases will the holding of winter wheat seed for use in the fall of 1918 be approved.

Warehousemen and elevator operators in the spring-wheat belt east of the Rocky Mountains must send samples of grain which they wish to hold for seed purposes to the laboratory of the Seed Stocks Committee. Minneapolis, Minn., for examination. In the spring-wheat region west of the Rocky Mountains, the samples are to be sent to the agricultural colleges of the States of Washington, Oregon, and Idaho.

The specific addresses to which samples should be sent are as follows: From spring-wheat region east of Rocky Mountains, W. L. Oswald, 326 Flour Exchange, Minneapolis, Minn.; from Washington, Prof. E. G. Schafer, secretary, State committee on seed stocks and agronomist of experiment station, State College, Pullman, Wash.; from Oregon, Prof. Geo. R. Hyslop, secretary of State committee on seed stocks and head of department of farm crops, Oregon Agricultural College, Corvallis; and from Idaho, Prof. Glenn S. Ray, professor of farm crops, Idaho University, Moscow.

CAREFUL THRESHING PAYS.

A Nebraska farmer, dissatisfied last fall with the 800-bushel return from 32 acres of wheat, at odd times during the winter ran the straw through the separator a second time. He obtained 75 bushels which sold for $187.50. There had been a waste of 9.3 per cent of his erop. Careful threshing pays.

Make your patriotism good by a bond.

Liberty Bonds will help get your crops to the world markets.

START WITH EWE LAMBS.

Beginners May Well Use Young Stock Which Is Cheaper and Has More Desirable Blood.

For inexperienced sheep raisers there are several important advantages in purchasing ewe lambs instead of mature breeding ewes. In the first place, says the United States Department of Agriculture, the ewes of breeding age that are offered for sale are mostly western ewes with a long-wool cross, while the ewe lambs coming from the West are mostly black-faced lambs, thus showing a cross of some of the Down breeds, which is the kind of blood most farmers wish to have in their flocks. By buying such ewe lambs one gets the advantage of starting with the first cross of the type to be used in grading up a flock to the mutton type.

Moreover, good breeding ewes are selling high. Lower prices are unlikely, as the demand is strong and the available supply is small. With probable high prices for mutton and wool in the future the farmer who understands sheep and will properly care for them from the start has good prospects of success.

Lambs Cost Less.

While breeding stock is selling high, the ewe lambs can be bought at about $5 a head less than breeding ewes. This is an important point in starting a flock, although until the lambs come to a breeding age no returns from the flock will be forthcoming except the wool clip. However, for the beginner in sheep husbandry, no better plan of obtaining experience could be adopted than in caring for a flock of ewe lambs for a year. The experience gained in wintering ewe lambs and managing the flock throughout the summer season would be invaluable.

Investment in a flock of ewe lambs will give the advantage of the first cross of blood of the Down breeds, lower price, and necessary experience. The wool clip will at least offset the first year's keep and the yearling ewes will be a benefit to weedy pastures next spring if moved frequently and not stocked so heavily as to eat the grass into the ground. Those who contemplate going into sheep raising should consult Farmers' Bulletin 840, "Farm Sheep Raising for Beginners," which will be sent free on request from the Division of Publications, Department of Agriculture, Washington, D. C.

The Imperial German Government does not want you to buy a Liberty Bond. The United States of America does want you to buy a Liberty Bond. Which will you please?

SAVE SCRAP METAL.

Overlooked Waste Product Convertible into Cash with Profit to Farmer and Service to Country.

The shortage in the supply of the iron and steel, which this country must have in increasing amounts if the war is to be won, has developed a new source of income for the farmer, and not merely a few farmers but most farmers.

The United States Geological Survey, Department of the Interior, calls the attention of farmers to the fact that even at the recently fixed prices of iron and steel it should be possible for most farmers to reap an overlooked profit through the sale of the old iron and steel scattered about their premises; that the saving of such old scrap metal will help to meet the present serious deficiency in the supply of iron and steel; that the use of the old metal will accomplish savings in coke, which is now to be had only at unprecedented prices; that the delivery of the old iron and steel at foundries far from iron mines and big steel centers will correspondingly relieve the excessive strain on the mines, some of the furnaces, and the railway and boat traffic in the coke and iron producing districts. The farmer who turns in his junk while the present prices prevail is likely not only to make a clear profit over the cost of hauling and freight, but, through increasing the iron and steel supply, he is contributing to the successful prosecution of the war.

Iron and steel are needed and must be had for innumerable things—for guns, shells, ships, bridges, buildings, docks, automobiles, airplanes, rails, cars, engines, pipe, oil-well casings, etc., and for export to the allies, Italy in particular being badly in need of steel for all purposes. This is the main fact.

In the Northeastern States scrap metals have long been more or less fully taken care of, mainly by the ubiquitous junk man, and along most railways and about most industrial plants they are now salvaged systematically. However, in the greater part of the United States little attention is given to saving the old metal scattered about the industrial plants of the farmers, where abandoned binders, plows, mowers, rakes, etc., occupy the fence corners and roadsides, and discarded stoves, pumps, pipe, and small utensils rust about the barns and sheds. A considerable part of this junk is already on wheels with tongue and whiffletree attached, ready in fact to be "walked on its own legs" to the freight station.

According to the census returns there were in 1910 about 1,265,000,000 dollars worth of agricultural machinery alone on the 6,361,502 American farms. Farm implements, not including stoves, chains, tools, etc., valued at about $165,000,000, are sold annually. A considerable part of the cost of manufacturing this farm machinery lies in the metals used, and the metals include not only iron and steel of various grades and values but occasional small parts of brass or copper. Most binders and mowers have one or more bearings lined with Babbit metal containing tin now worth about 60 cents and lead worth 10 cents per pound. On the whole, excluding the metals used in railroad construction and transportation, or in city engineering and building, by far the greater part of all the iron and steel produced in this country in normal years is shipped out to the farm. It has been roughly estimated that three-fourths of this metal stays on the farm. As to this question, the farmer can judge for himself. How much of this is lying around on your premises? If there is any—and there is probably plenty—it is a good time to consider its disposal while the war lasts and the prices are high. Besides, the country needs the metal.

Many farmers will take advantage of the opportunity to recover a profitable revenue from this overlooked and waste product; others, according to distance from the markets, may sell at little or no profit, except the satisfying sense of patriotic duty performed. Still others remote from the consuming foundries and furnaces can not afford a high cost of delivery which may far exceed the price received for the junk. Information should be secured in advance on this question. The Geological Survey suggests that farmers take up the question through the grange, the alliance, the farmers' unions, State experiment stations, the farmers' institutes, and other similar organizations, with a view to ascertaining the location of the best market, probably the nearest foundry or junk dealer; the cost of transportation; the best prices obtainable for the different classes of junk or implements, and the quantities of junk that can be used at the foundry or handled by the dealer. The same agencies might well arrange for cooperative local action on the part of the farmers in the different communities, fixing dates when cars would be in readiness for loading the old metals, informing the farmers as to possible grading of their junk and attending to railway transportation, delivery, and possible settlements at the points of consumption.

Cooperation should bring the best results. Care should be taken not to overwhelm the furnace or consumer by all shipping at once, so that too great quantities are delivered within a short period, for it is important to bear in mind that many foundries may not have the junk capacity or the extra labor needed to assort and break up great quantities of scrap when it is delivered. Somewhat definite arrangements should be made in advance of shipments, and these can best be accomplished by some such agencies as those suggested above.

The coming autumn, winter, and early spring should be the best time for gathering up the scrap metals, getting in touch with the markets, and arranging community shipments. The farmer should learn whether he is too far from markets and should ascertain the scope and extent of the market demands. There is plenty of time within which to gather and ship his scrap, but his cooperative information system should be organized now. The farmers have many hundreds of thousands of tons on hand; the prices are unprecedentedly high; the country needs the metals. From the economic standpoint, it is a question of profitable thrift, of relieving in part the shortage in the metals, of conserving the iron ore and coal in the ground, and of service to the country.

FILL THE SILO TO CAPACITY.

Use of sufficient labor to insure thorough packing fills the silo to its rated capacity and at the same time prevents spoilage of ensilage around air pockets. A silo carefully packed will hold much more than one carelessly packed. In a silo over 12 feet in diameter it may be found profitable to keep two men or two or three boys busy at the pack.

SOAKED PEAS AND BEANS.

If Represented as Fresh, Products Violate Food and Drugs Act.

The officials in charge of the enforcement of the Food and Drugs Act are again calling attention to the practice of soaking dried peas and dried lima beans until they have the appearance of the fresh article and then canning them. Such products are then in many instances sold as the canned fresh article. Unless soaked peas and lima beans are plainly labeled as "soaked" or in some other manner so as to show their character, they are regarded as in violation of the Food and Drugs Act.

There is no denial that soaked peas and lima beans are a wholesome article of food. They are, however, admittedly inferior in quality to the products prepared from the fresh vegetables. Furthermore, the dried peas or beans may themselves be purchased by the housewife quite cheaply and while in the dried condition may be commercially and satisfactorily stored for future use.

Save Tin Plate.

The housewife will also do her bit in the conservation of our limited supply of tin plate by soaking and cooking her own dried peas and lima beans in the kitchen and thereby releasing a proportional amount of tin cans for use in the packing of perishable foods, where they are greatly needed.

Consumers are urged to read labels of canned peas and lima beans carefully in order to see whether or not they are getting a fresh or a soaked dried product.

DAIRY EXPORTS.

Increase in Shipments of Milk, Cheese, and Butter Show Importance of Dairy Animals.

"Exports of condensed milk which for a three-year period before the war averaged 17,792,579 pounds annually have increased to 259,102,213 pounds for the fiscal year ending June 30, 1917.

"Cheese exports which for the three prewar years averaged 3,788,065 pounds reached 66,087,213 pounds for the last fiscal year, a seventeenfold increase.

"Exports of butter which for the three years previous to the war were 4,457,144 pounds increased in 1917 to 26,835,092 pounds.

"The ravages of war now call for a prompt increase of dairy cattle in those countries able to raise them. The world's total number of cattle has already decreased more than 28,000,000. In England, France, and Germany the herds are being deliberately sacrificed to supply the immediate necessity for meat. Judging from all indications, the sacrifice of dairy animals will be even greater as the war continues."—U. S. Food Administration.

THRIFT THOUGHT.

Here is an appetizing way to use that meat left from yesterday's roast, Madam Housewife.

It is suggested by the United States Department of Agriculture.

Meat Pie.

Cut meat into fairly small pieces. Stew in saucepan with a little water, left-over gravy or soup, salt to taste, and such seasoning vegetables as onions and celery, if desired. Thicken liquid with flour. Line baking dish with biscuit dough, pour in the meat filling, cover with biscuit dough and bake in a medium oven.

If the quantity of meat is small, a little macaroni or diced potato may be added.

Such pies to be at their best must be well seasoned.

SELECT MORE SEED CORN.

Get Double Supply—Largest Quantity and Best Quality Available Now.

Five reasons for selecting and saving double the usual amount of seed corn in the localities where the corn crop is maturing in good condition are put forth by the United States Department of Agriculture for the consideraion of farmers in a statement issued recently. The department believes that much more than the usual acreage of corn will be planted next spring and that now is the best, surest, and easiest time to get the necessary seed. The five reasons for increasing the seed-corn supply are:

Reasons for Increasing Supply.

(1) First-class seed corn is scarce almost every spring.

(2) Extended plantings and replantings practically exhausted the hold-over supply last June.

(3) In some sections this year's crop has been destroyed by drought or early frosts. Farmers of these sections should now arrange to secure seed from localities possessing climatic conditions similar to their own.

(4) In the localities favored with a crop this year next year's crop may be destroyed, and there should now be selected a supply of locally adapted seed for 1918 and a hold-over supply for the 1919 planting.

(5) Hail storms, floods, and droughts yearly destroy millions of acres of young corn, making second and third plantings necessary. Seed corn dealers who provide ample supplies of seed of early maturing varieties render valuable service by prompt deliveries for these emergency plantings.

SAVING WASTE BY CITY MARKET.

In Wilmington, N. C., the county agent, J. P. Herring, has just proved that a cooperative community market was worth while and a real necessity. So the county authorities not only gave him a clerk to help run it but established it in the courthouse itself.

It was planned to make this market a connecting link between producers, on the one hand, with stuff going to waste because the local merchants refused to take it even at low prices, and with housewives, on the other hand, who were willing to buy at nominal prices, especially for canning, drying, and preserving. After a short trial it was found that the market was serving its purpose notably, and large quantities of cabbage, beans, and beets which were going to waste were bought by the housewives and were krauted, pickled, and canned.

Each morning the young woman who acts as manager of the market telephones to the farmers to find out what they have for the housewives and canning clubs of the city. Then she calls up the women and learns their needs or tells them of special products. In many cases she sells for future deliveries to the great benefit of the farmer and of the housewife.

The farmer who invests in a Liberty Bond lends Uncle Sam money to buy farm products.

REDUCE CAR SHORTAGE.

What Farmer Can Do to Help in Movement of Freight—Load Cars Heavily and Unload Promptly.

While much has been done to relieve car shortage, the fall movement of crops puts a heavy strain upon transportation facilities. Each autumn witnesses a sharp increase in rail tonnage, and the conservation of the country's transportation facilities and the most efficient use of cars by shippers of perishable farm products is just as important at this time as during the spring and summer, according to the Bureau of Markets of the United States Department of Agriculture. Between May 1 and September 1 of the present year the Special Committee on National Defense of the American Railway Association succeeded in reducing the number of unfilled car requisitions by more than 78 per cent, but there is still no surplus of cars.

Weather Permits Heavier Loading.

Cars, packages, commodities, time in transit, and seasons are variable, and the department has no accurate data from which rules can be laid down as to the exact quantity of a given commodity of a certain degree of maturity which can be loaded into a car for a definite haul to a particular market; but cooler weather makes refrigeration less necessary and makes it possible to run more commodities under ventilation and to load cars more heavily than during the summer.

The following 13 commodities are now moving to market in carload lots: Apples, cabbage, cantaloupes, celery, grapes, lettuce, onions, peaches, pears, sweet potatoes, tomatoes, watermelons, and white potatoes. The movement covers 32 States, with an average of more than 3 of the commodities from each of the 32 States.

Foodstuffs May Be Lost.

The transportation situation is still serious, and shippers of these commodities are reminded that patriotism demands of them the heaviest loading possible consistent with the safe carriage of the goods. The failure of one shipper to load cars to the maximum may prevent other shippers from getting any cars at all, with a consequent loss of those foodstuffs on which the winning of the war depends.

The present is a time for the closest cooperation of all interests for the most efficient utilization of cars. Shippers also should load and unload cars promptly and should place diversion orders at diversion points before the arrival of cars to be diverted.

You eat your cake and have it, too, when you buy a Liberty Bond.

POTATO WEEK.

Proposed That Every One Should Make Special Effort to Eat Potatoes October 22 to 27, Inclusive.

Three purposes will be accomplished by a nation-wide potato week, in which every one will make a special effort to eat potatoes during the week from October 22 to 27, according to the United States Department of Agriculture. The first of these purposes is to encourage the eating of the tubers, because at that time it is expected that potatoes will be the most available and economical starchy food; the second is to save wheat during this period; and the third is to encourage the general use of potatoes as a wheat substitute by the American householder.

It is proposed that consumers make a special effort to eat potatoes prepared in different ways, recipes for which can be obtained from the home economics departments of the various State colleges of agriculture or from the United States Department of Agriculture. It is not supposed that this potato week will of itself have much effect on the potato situation, but it should call the attention of the people to the fact that there is a plentiful supply which should be used in domestic commerce, leaving the more readily transportable grains for export trade. In shipping potatoes about four-fifths of the weight is water; in shipping wheat only one-eighth is moisture.

The department does not claim any originality for the idea of a potato week. The same plan has been in effect for a number of years in respect to raisins, for which there is a national raisin day, established through extensive advertising by the raisin industry of California. The same thing has been done in respect to oranges by the citrus-fruit associations. The purpose of the days is to increase the general consumption of these products by acquainting the people with their food value.

Potato Dish for Each Day in the Week.

It is said that potatoes may be cooked in more ways than any other vegetable, and a score or more variations are within the knowledge of any good hotel chef. Seven ways, one for each day in the week, beginning with Monday's, Tuesday's, and Wednesday's dinners, through Thursday's lunch, Friday's diuner, Saturday's lunch, and Sunday's supper are here given.

Stuffed potatoes: (Monday.) Cut baked potatoes in half, remove the pulp, mash it, add enough milk for the usual consistency of mashed potatoes, and season with butter, salt, and pepper. Fill the baked skins with this mixture, dot the tops with butter and bake for 8 or 10 minutes in a hot oven. To vary this add to the mashed potatoes before the skins are filled, any one of the following: Beaten white of egg (1 egg to 3 medium-sized potatoes); grated cheese (one-half cupful to 3 medium-sized potatoes); chopped meat (one-half cupful to 3 medium-sized potatoes); chopped parsley (1 tablespoonful to 3 medium-sized potatoes).

Scalloped potatoes: (Tuesday.) Use raw, thinly sliced potatoes in layers, each layer to be sprinkled with flour, butter, pepper, salt; lastly pour in just enough milk to be seen through the top layer, and then bake for about an hour, or until the potatoes are tender. This may be varied by adding, in layers, hard-boiled egg, sliced; grated cheese; or minced ham.

Boiled potatoes: (Wednesday.) Select potatoes of uniform size, wash them with a brush, and plunge them into boiling salted water (1 teaspoonful salt to 1 quart water). Cook them with the cover of kettle ajar, until tender, from 20 to 30 minutes, drain the potatoes, remove the skins, dress the potatoes with butter if desired, and serve them immediately. If it is necessary for the potatoes to stand a few minutes before being served, cover them with a cloth, not a lid, in order that the steam as it condeuses may be absorbed by the cloth and not returned to the potatoes to make them soggy. This is the reason for serving potatoes in an uncovered dish. The potatoes may be sprinkled with chopped parsley.

Potato salad: (Thursday—from Wednesday's left overs.)

6 cold boiled potatoes.	Cayenne pepper.
4 tablespoonfuls salad oil or melted butter.	2 tablespoonfuls chopped parsley.
2 tablespoonfuls vinegar.	Few drops onion juice.
½ tablespoonful salt.	

Cut the potatoes in ½-inch cubes. Make a dressing by mixing thoroughly the other ingredients. Pour this dressing over the potatoes, and allow them to stand for 15 minutes. Drain off any dressing that may not have been absorbed by the potatoes. Garnish the salad with sprigs of parsley and serve with cream dressing or mayonnaise. To the salad may be added any of the following: 1 cupful chopped celery; 2 cucumbers, chopped; or 2 hard-boiled eggs, chopped or, as a garnish, sliced.

Mashed potatoes: (Friday.) Thoroughly mash cooked potatoes. Add 4 tablespoonfuls of hot milk, 1 tablespoonful of butter, and a little salt and pepper to each pint of potatoes. Beat the mixture with a fork until light and pile it lightly in a hot serving dish.

Mashed potatoes may be shaped into small cakes. Brown them in a frying pan in a small amount of hot fat. Mix with boiled codfish or canned salmon for fish cakes.

Potato soup: (Saturday—from Friday's left overs.)

2 cupfuls hot riced or mashed potatoes.	1½ teaspoonfuls salt.
1 quart milk.	Celery salt.
2 slices onion.	Pepper.
3 tablespoonfuls butter.	Cayenne.
2 tablespoonfuls flour.	1 teaspoonful chopped parsley.

Scald the milk with the onion, remove the onion, add the milk slowly to the potatoes. Melt the butter, add to it the dry ingredients, stir the mixture until it is well blended. Add this to the liquid mixture, stirring constantly, and boil the soup for one minute. Strain it if necessary, add the parsley, and serve.

Potato biscuit: (Sunday—from Friday's or Saturday's left overs.)

1 cupful mashed potatoes.	½ teaspoonful salt.
1 cupful flour.	1 tablespoonful butter.
4 teaspoonfuls baking powder.	1 tablespoonful lard.
	Milk, about ½ cupful.

Sift the dry ingredients. Add these to the potatoes, mixing with a knife. Work the fat into this mixture lightly. Add gradually enough milk to make a soft dough. Toss the dough on a floured board, pat, and roll it lightly to ½ inch in thickness. Cut it into shapes with a biscuit cutter. Place the biscuits on greased pans and bake 12 to 15 minutes in a hot oven.

COUNTRY CREAMERY ACCOUNTS.

A uniform accounting system for country creameries has been completed by specialists of the Office of Markets and Rural Organization of the United States Department of Agriculture. The system, which is adaptable to large and small creameries, is described in a new publication of the department, Bulletin 559, "Accounting Records for Country Creameries."

That there is great need of standardizing account keeping in this field of business is recognized by those who have come in contact with it. This system has been developed and perfected in actual operation in a number of country creameries, and being uniform it can be used by the various types of creameries, from those privately owned and operated to cooperative concerns. The Department of Agriculture is prepared to furnish printer's copy of the forms comprising the system, and in so far as practicable to render assistance through its representatives to creameries desiring its installation.

THRIFT THOUGHT.

Cold ham, chicken, or other meat left over in quantities too small for use alone, may be used advantageously by mixture with other foods, says the United States Department of Agriculture. Here is a recipe for one way to use such meat.

Meat and Pastry Rolls.

Chop the meat fine and season it well. Mix in enough butter or other fat to make it "shape" well. Form into rolls about the size of a finger and wrap around each a thin piece of short dough made from a pint of flour, 2 tablespoonfuls of baking powder, salt, and milk enough to mix.

Bake the rolls in a hot oven until they are a delicate brown. Serve hot.

REMOVE THOSE STAINS.

How to Remove Spots From Garments and Fabrics—Different Methods for Different Materials.

To give clothes a longer period of service, and to conserve garments or fabrics which may appear to be hopelessly stained, is the object of a new publicatiou just issued by the Uuited States Department of Agriculture.

Lady Macbeth might have had less trouble with that spot if she could have read this bulletiu on "The Removal of Stains from Clothing and Other Textiles." Uncle Sam says that if the housewife knows the cause of a stain, she can find a commonsense way to get rid of it by following the directions given in this bulletiu. Methods are outlined for the removal of practically any kind of stain, from "acids" all the way through the alphabet to "whitewash." They have been tested by the home-economics experts of the department.

Kind of Fabric and Nature of Stain.

One of the first requisites in removing stains, says the bulletiu, is to know the kind of fabric which is spotted and, if possible, the nature of the stain. Some stain removers which will give admirable results on cotton or linen may, if applied to woolen or silk, remove pieces of the fabric as well as the stain. Likewise, stain removers which are eutirely satisfactory for cleaning silk or woolen materials can not always be used for removing stains from vegetable fibres, such as cotton or linen. Similarly, treatment which will remove some stains immediately will cause those of a different nature to take firmer hold ou the fabric.

The second cardinal principle in spot removal is to work while the stain is fresh. Cold or lukewarm water is usually the housewife's best bet for a first step, the bulletin indicates, if the nature of the stain is not known and if the fabric is not injured by water. Hot water should not be used until it is determined that the staining material is such that it will not be "set" by heat. Stains from meat juice, blood, egg, milk, and other materials containing protein are set by hot water.

If stains are of such a nature that they will not yield to laundering or sponging with water or with water and soap, it is necessary to use one or more of a number of chemicals. Besides water and soap the bulletin names as the substance most useful iu removing stains, Javelle water, potassium permanganate solution, oxalic acid solution, ammonia water, carbon tetrachlorid, French chalk, and cream of tartar, each of which may be used successfully, provided the right one is used at the right time. Detailed instructions for treating various stains are contained in the publication. Copies of the publication, Farmers' Bulletin 861, may be had free so long as the supply lasts, on application to the United States Department of Agriculture, Washington, D. C.

WINTER WHEAT ON GREAT PLAINS.

A report of experiments in the growing of wiuter wheat in the Great Plains area recently published by the United States Departmeut of Agriculture as Department Bulletin No. 595, should be useful to farmers in this region who are planuing to increase their wheat acreage, in the opinion of officials of the department. The title of tho bulletin is "Winter Wheat in the Great Plains Area." Copies may be had on application to the United States Department of Agriculture, Washington, D. C.

SAVE SKIM MILK FOR HUMAN FOOD.

Although skiu milk is recognized as having great value in feeding animals, the United States Department of Agriculture points out that its value as human food should be kept in mind. By substituting grain, green feed, buttermilk, and whey in animal feeding, much skim milk may be left for human use as a beverage, in cooking, condensing, or for making cottage cheese. Only the surplus of this valuable human food should be fed to stock.

While skim milk is good for stock, the fact remains that its highest efficiency can not be had through turning it into meat. Skim milk is used most economically in animal production when fed to hogs, yet it takes 20 pounds when fed alone to produce 1 pouud of pork. The same quantity will make 3 pounds of cottage cheese. In addition cottage cheese contains 1½ times as much protein and one-third as much energy as pork, so that the skim milk in the cheese form gives quite as much energy and 4½ times as much protein as it would if converted into ham or bacon.

Even at the highest prices recently paid for hogs, skim milk fed to them is worth not more than 1 cent a pound. Yet 1 cent a pound, or approximately 1 cent a pint, is very cheap for any human food, and particularly for a food so high in nutritive value as skim milk.

How much do you love your country—measured by Liberty Bonds?

Liberty Loan dollars are among the biggest buyers of farm products.

In a Liberty Bond your money works for the Nation—yet you get it back when its job is done—plus 4 per cent.

SOME CABBAGE RECIPES.

Suggestions for the Preparation of Dishes That Are Different from "Plain Boiled."

How to vary the preparation of cabbage from "plain boiled" is suggested by the United States Department of Agriculture in the following recipes:

Cabbage with Sour Sauce.

After taking off the outside leaves, remove tough stalk from a small head of cabbage; cut in quarters; soak in cold water and cook in boiling salted water in an uncovered dish, adding one-fourth teaspoonful of soda. Cook slowly from 30 minutes to 1 hour, drain, and serve with the following sour sauce:

Melt 1 tablespoonful of butter or other fat, then add one tablespoon of flour and one-half cup of milk. Stir over the fire until hot and add 1 teaspoonful of made English mustard and 2 tablespoonfuls of warm vinegar. Pour over hot cabbage. If preferred a plain cream sauce can be used.

Smothered Cabbage.

Cut fine one-half head of cabbage. Melt two level tablespoonfuls of butter or other fat in a pan and stir in 2 level tablespoonfuls of flour. Add the cabbage, 1 cup of sweet milk, 1 teaspoonful salt, and oue-eighth teaspoonful pepper. Cover closely and simmer slowly 30 minutes.

Cabbage Pudding.

Shred the head of cabbage closely and cook in salted water until tender. Drain and place in buttered dish in layers with sprinkling of grated cheese between. To 2 level tablespoonfuls of melted butter or other fat add 2 tablespoons flour; add a cup of milk, yolks of 2 eggs, 1 teaspoon salt, and one-half teaspoonful of mustard. Stir over fire until it boils, then add beaten whites of eggs. Pour over cabbage, mix well, and bake 1 hour.

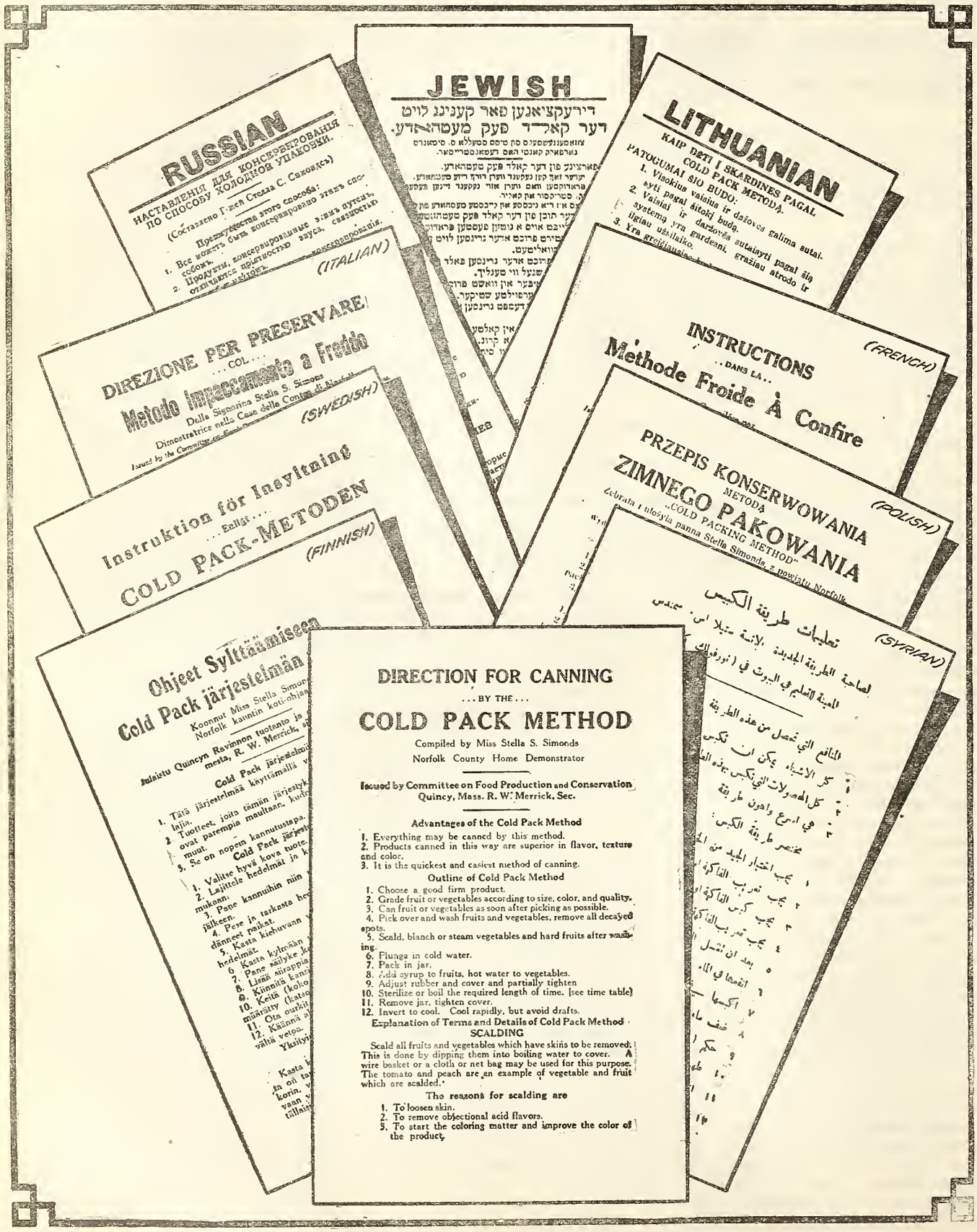
Stuffed Cabbage.

Remove coarse outer leaves and core. Parboil for 3 minutes. Fill core and inside of each leaf with finely chopped left-over meat (raw meat is best), or sausage. Tie securely in cheesecloth. Place in kettle with two or three carrots and onions. Cover with stock, and let simmer slowly two hours, or until tender.

Cold Slaw.

Slice a small cabbage very finely. Soak in cold water until crisp. Drain and dry between towels and mix with cream salad dressing. It will improve the dressiug to add to it a very little curry powder.

Buying a Liberty Bond is a promise to yourself to save your money.



Canning in 10 languages. How Quincy (Mass.) conservators taught United States Department of Agriculture methods to our new citizens.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., OCTOBER 24, 1917. No. 12

HOW DID YOU HELP?

Assistant Secretary Ousley Says All Must Answer This Searching Question—Liberty Loan Way.

"I have pity for the man or the woman who is not going to have any part in this war; there's a reckoning coming for the slackers," said Assistant Secretary Clarence Ousley, addressing a Liberty Loan meeting of employees of the Department of Agriculture. "We actually give nothing when we buy a Liberty Bond. I wish the Republic might ask us to give. We ought to be glad to subscribe without interest."

The following is a summary of Mr. Ousley's reasons why every citizen should purchase bonds, not merely from his abundance but to an extent calling for self-denial and sacrifice:

"Fellow-servants of the Department of Agriculture: What is it we serve? Whence do we draw our maintenance? The Republic that now calls upon us to give evidence of our appreciation of the dignity of our service and calls upon us to render so small a service. Seventeen cents a day would buy a Liberty Bond. That is a piece of pie and a cheap picture show. That is all the denial it means.

"This Republic invites us to save for our own welfare individually, not to give. Oh, I wish it might ask us to give! I think we ought to subscribe without interest. I never loaned very much money, but I have borrowed a great deal, and I never felt under any obligation to the man who charged me interest for the accommodation. I do not feel that in the Liberty Loan I have already made, and the other I am going to make, I am absolutely or actually giving anything to my Government. I am only taking advantage of an opportunity to invest some savings in a mortgage upon the United States of America, realty that reaches from the Frigid Zone almost to the Tropics, and from ocean to ocean—a small mortgage on $250,000,000,000 of wealth. That is all the Government asks.

Pride Versus Deed.

"We are very proud of this country; we are proud of what our forefathers have done. Has it occurred to you to ask yourselves: 'What have I done for my country?' I sometimes indulge in, not admiration, but tolerance of a man who boasts of his ancestors. We are a people prone to talk about the achievements of the fathers, but when I hear a man boasting of his ancestors and know that he has done nothing to try to equal their achievements I am bound to realize that he confesses himself a degenerate. If we are worthy sons and daughters of the great men who built this Republic and preserved it we will at least try to match their achievements. I have pity for the man or the woman who is not going to have any part in this war. Let me tell you, my friends, if it requires the sacrifices that now seem probable, then the sissy boy whose mother has kept him out of the war, the tightwad who has not contributed to this fund, the man or the woman who has not responded to this appeal, will be scorned by his neighbors in the days that are to come when the sacrifices are reviewed, and when hearts bleed for those that have died. Every day of his life will be a day of reproach.

> **France came to our aid when we were struggling for our liberty, and I hoped that we would do more than try to pay that debt in dollars—through the sacrifice of blood and suffering.**
>
> **Remember you're not giving. Subscribe—you are not giving—this is more than meat and raiment; this is liberty and the perpetuation of those blessed institutions which we enjoy.**
>
> **It must be made clear that headway can not be made in the world by unrighteous brute force.**
>
> **I hate all things that are wicked and brutal and beastly, and so I hate Prussian militarism and its cruelties.**
>
> **I have an enthusiasm for this contest in that I have a deep grief for those whose lives must be sacrificed.**
>
> **At least invest some of your savings in a mortgage upon the United States of America—a small mortgage on 250 billion dollars of wealth—all that the Government asks.—** *Clarence Ousley, Assistant Secretary of Agriculture.*

"There is a reckoning coming for the slackers. They will not feel it during the days of stress, but they will feel it during the days of reconstruction and of restoration because we will remember and exalt those who answered the call, and we will despise those who did not answer the call.

Why We Are at War.

"Recently the Secretary of Agriculture gave his views as to why we are at war with Germany. He asserted that we are at war with Germany because she made war on us, denying and invading our obvious rights; that we are at war with Germany to make good our claim that we are a free nation, to exercise our rights without restraint or dictation from Prussian militarists, to have the kind of institutions we wish, and to live

(*Continued on page 2.*)

LIBERTY LOAN PRIMER.

Common Questions About Bonds Answered Simply by Treasury Department.

The following is taken from a pamphlet issued by the Treasury Department, explaining the character of Government bonds issued for the second Liberty Loan:

Q. What is the Second Liberty Loan of 1917?

A. It is a loan of money by the people of the United States to their Government.

Q. Why does the United States Government borrow money?

A. Because we are forced to defend ourselves against the attacks on American honor and American rights by the German Government, and therefore must have money to equip and maintain our Army and Navy. We need money also in order to lend to those nations with whom we are making common cause in this war.

Q. When I lend my money to the United States Government, what do I get in return?

A. You get a promissory note given by the United States Government and bearing interest. This note is called a "bond." A United States Government bond is the direct and unconditional promise of the United States of America to pay upon a certain date a specified sum of money in gold, together with interest at a specific rate, payable at specific dates until the bond matures, or is called for redemption.

4 Per Cent Interest.

Q. Do I get any interest on my money while it is loaned to my Government?

A. Yes; the Government will pay you interest at the rate of 4 per cent a year.

Readily Resold.

Q. Do I have to hold my bond until the date it is due before I get my money back?

A. No; you can sell your bond any time you desire. There is always a ready market for United States Government bonds.

Q. How can such a sale be made?

A. Any bank, trust company, reliable bond dealer, or broker will be glad to sell your bond for you at any time.

Best Security for Loans.

Q. If necessary, could I borrow money on these bonds?

A. Yes; United States Government bonds are the best security which can be offered in borrowing money. They will obtain for you the best terms possible. Ask any bank if

you desire to borrow money on your liberty bonds.

How Far Exempt From Taxes.

Q. Are Liberty Bonds exempt from taxation?

A. The bonds are exempt both as to principal and interest from all taxes imposed by the United States, any State, or any of the possessions of the United States, or by any local taxing authority, except:

(*a*) Estate or inheritance taxes.

(*b*) Graduated additional income taxes, commonly known as surtaxes and excess profits or war-profits taxes now or hereafter imposed by the United States upon the income or profits of corporations, individuals, partnerships, or associations.

The interest on an amount of bonds and certificates, not in excess of $5,000 in one ownership, is exempt from the taxes provided for in Clause (*b*) above.

Free from All Local Taxation.

Q. Does this mean that the bonds are free from all local taxation?

A. Yes; the local assessor or tax collector can not assess these bonds as personal property.

Liberty Bonds on Easy Payments.

Q. How can I buy the bonds of the Second Liberty Loan?

A. By filling out an application blank and handing it to any bank or trust company, bond dealer or broker, or to one of the Federal reserve banks, or to the Treasury Department at Washington.

Q. When can this application for bonds be made?

A. At any time until the close of business on the 27th day of October, 1917.

Q. Must the full price of bonds be paid on application?

A. No; only 2 per cent of the amount you want to buy is required when application is made. The remainder must be paid in installments as follows: 18 per cent on November 15, 1917; 40 per cent on December 15, 1917; and 40 per cent on January 15, 1918.

Weekly or Monthly Payments?

Q. Can I buy a bond on the installment plan by paying for it weekly or monthly?

A. The Treasury Department will not accept payments in this manner, but many banks and a great many employers will sell you a bond and allow you to pay for it in partial payments. If you desire to pay for your bonds in this way, consult your employer or any banker.

HOW DID YOU HELP?

(*Continued from page 1.*)

the kind of national life we have determined to live; that we are at war with Germany, in cooperation with other decent and liberty-loving nations of the earth, to preserve freedom in the world and to prevent a recurrence, if possible, of another calamity such as the world is now enduring. He asserted that his enthusiasm was quickened by the thought that, through the successful prosecution of this war, wars might be rendered impossible in the future. I accept these reasons for our entrance into the war and I share the Secretary's enthusiasm. I know that he has other enthusiasms and I know that he has profound resentment against the crimes of Prussian militarism perpetrated against this Nation and others.

A Debt Not to Be Repaid in Money.

"There is a good deal of old Adam in all of us. There is much of old Adam in me. I confess the enthusiasm of righteous anger. The President says we must not hate, and I do not hate anything that does not deserve to be hated, but I hate all things that are wicked, and brutal, and bestial, and so I hate Prussian militarism and its cruelties. I have an enthusiasm for this contest in that I have a deep grief for those whose lives must be sacrificed. I have also a deep sense of gratitude. I felt it even before the *Lusitania* was sunk; I felt it urge when France was in danger, because I remembered how France came to our aid when we were struggling for our liberty, and I hoped that we would do more than try to pay that debt in dollars. I longed for the opportunity when we could also pay it in the sacrifice of blood and suffering.

The Lesson of Belgium.

"I have another feeling about it. I have an enthusiasm for this contest when I recall what happened in Belgium and northern France, when able-bodied men were sent back to relieve German workers who could go to the front and fight their Belgian kin. I have a greater enthusiasm than that, when I recall the pictures of Madame Carrel who visited those desolate towns and villages of northern France and found there, after the Germans had been driven back, only the old men and the little children. All the young girls had been carried away. We know what for. I know that if this war is not won overwhelmingly that which befell those daughters of Belgium and France will befall my fair daughters.

Liberty for Those Who Are to Come.

"I have another enthusiasm for this war. I am not only concerned about my own liberty, which I love above all things else, but I am concerned about the liberty of my grandson. We will safeguard that liberty and the liberties of those who are to come after us only by making sure the overwhelming victory that now threatens on the western front.

"I want only to say, as the Secretary of Agriculture would say to you, that he expects every man and woman in the Department of Agriculture to do his duty, not merely from his abundance but by self denial and sacrifice I hope you will subscribe (remember you are not *giving*) and lend with the same fervor in this that you do in the sustenance of your family. **This is more than meat and raiment; this is liberty and the perpetuation of these blessed institutions which we enjoy.**

"For my part I hope the contest will not end until the last military autocracy in Europe has been beaten down, until the medieval Governments of Central Europe are modernized and in fair measure are made responsible to the whole peoples with whom the other nations of the earth may keep faith; until it is made clear that headway can not be made in the world by unrighteous brute force, until the rights of all nations, large and small, are respected; and until a condition is developed under which all the peoples of the earth may go about their business in peaceful, orderly fashion, as they choose to do for their own comfort and well-being, without hurt to their fellows, with no power on earth that dares to say them nay."

Do you wish your country to win this war? Wishing alone won't help, but if you buy a Liberty Bond you can make your wish come true.

SAVE ENOUGH SEED CORN.

Campaigns Being Conducted in Middle Western States.

Special representatives of the United States Department of Agriculture are in the field in the corn-producing States of the Middle West to complete the campaign for the saving of a two-year's supply of seed corn from the present crop. Twenty emergency workers have been sent to Iowa by the extension department. Thirteen emergency men are in Indiana and corps of special workers will be assigned to each corn-producing State cooperating with the State colleges and agents. For several weeks the county agents have been paving the way for the campaign wind-up now being undertaken. The campaigners go into the cornfield with the farmer, assist him in the selection of the best seed corn, and in its proper storage after selection. The necessity of making absolutely certain at this time an ample seed corn supply both for next year and the year following is being urged as one of the most important agricultural duties in the corn belt.

Don't save at the bunghole and waste at the spigot. A big Liberty Bond to stop the big wastes—a little one for the petty extravagances.

GRAIN STANDARDS ACT.

Letter of Secretary of Agriculture Discussing Dockage System of Grading.

The United States grain standards act is thoroughly analyzed in the following important letter by Secretary Houston to W. F. Brown, Byers, Kans.:

"October 10, 1917.

"Reference is made to a letter addressed by you under date of September 17 to the Hon. Jouett Shouse, Member of Congress, seventh district, Kansas, in which you register a complaint against the United States grain standards act. You do not specifically protest against any particular provision or provisions of the act, nor do you complain against the official grain standards of the United States established thereunder.

"It is believed that the real cause of any complaint which you may have is not occasioned by the requirements of the United States grain standards act, nor the standards fixed and established thereunder, but is due primarily (1) to a misunderstanding on the part of farmers and country grain dealers as to the requirements of the act and the Federal standards for wheat, (2) incorrect and arbitrary application of the Federal standards on the part of country buyers, (3) dissatisfaction on the part of the growers with the actual price fixed and paid for the delivery of wheat at terminal markets.

No Mandatory Assessment.

"It has been brought to the attention of the United States Department of Agriculture from several sources that, in certain parts of the country where this year's crop of wheat is now being moved, the country grain dealers are assessing the farmers a discount against all wheat purchases, contending that such assessment is mandatory by reason of the official grain standards of the United States for wheat under the United States grain standards act. Apparently the contention on the part of the country grain dealers is based upon the item 'dockage' contained in the official standards. From information received by the department it appears, however, that the discount is an actual and arbitrary assessment in the interest of the buyers, and is neither on the basis of the official standards nor required nor contemplated by the act or the regulations thereunder.

Dockage System of Grading.

"The primary purposes in the establishment of the official grain standards of the United States were to provide a basis whereby parties to transactions involving the purchase and sale of grain shipped and delivered for shipment in interstate and foreign commerce might, through being able to obtain a correct application of such standards, arrive at the actual value and make settlement accordingly. These standards for wheat do not provide for any arbitrary assessment for dockage. They do provide for the determination of the amount of sand, dirt, weed seeds, weed stems, and certain other matter called 'dockage,' which actually may be present in a lot of wheat, the amount of which, if equal to or in excess of one-half of 1 per cent by weight, is to be stated in terms of the actual percentage as a part of the grade designation of the wheat. This is called the dockage system of grading and has been used for many years in the Northwestern States prior to the adoption of the official standards. The transactions in question appear to be purely local, not involving interstate commerce, and are perhaps conducted in a way not within the prohibitions of the act. Nevertheless, the department is investigating the matter, and will be glad to have any facts which may be of value. It will do everything in its power to bring about the discontinuance of misrepresentations based on the act or the standards thereunder.

Opinion Regarding Dockage.

"It must be borne in mind that with the establishment of fixed prices to be paid for wheat, competitive buying has been practically eliminated. This injects a feature unprecedented in the history of grain marketing. This fact, together with the fact that the Federal standards for wheat are comparatively new, having been in effect only a few weeks, constitutes the cause of the agitation and confusion. It is believed that under existing conditions, no matter what standards or methods of grain grading were used, the same difficulties would be met. For your further information, the opinion of the department regarding 'dockage' in wheat is set forth as follows:

"The official grain standards of the United States for wheat, in force and effect for Hard Red Winter wheat, Soft Red Winter wheat, Common White wheat, and White Club wheat, on and after July 1, 1917, and, for all other wheat, on and after August 1, 1917, as set forth in Service and Regulatory Announcements, Markets No. 22, include, in part, an item for dockage. This item is found under section 3, as follows:

> "Sec. 3. *Dockage.*—Dockage includes sand, dirt, weed seeds, weed stems, chaff, straw, grain other than wheat, and any other foreign material which can be removed readily from the wheat by the use of appropriate sieves, cleaning devices, or other practical means suited to separate the foreign material present; also, undeveloped, shriveled, and small pieces of wheat kernels necessarily removed in properly separating the foreign material. The quantity of dockage shall be calculated in terms of percentage based on the total weight of the grain including the dockage. The percentage of dockage so calculated shall be stated in terms of whole per centum and half per centum. A fraction of a per centum when equal to or greater than a half shall be treated as half, and when less than a half shall be disregarded. The percentage of dockage so determined and stated shall be added to the grade designation.

"The purpose of the item above described is threefold—first, to define dockage; second, to prescribe how dockage shall be calculated; third, that whenever dockage is found in wheat the amount thereof shall be stated and made a part of the grade designation for the wheat.

"The department's interest in the question of dockage is primarily directed to the enforcement of a correct determination of dockage under the official grain standards of the United States for wheat and to obtaining compliance with the provisions of the act which require the use of those standards and the grades thereof.

"For example, in the case of a country dealer who ships his wheat in interstate commerce to a terminal market, where inspectors licensed under the grain standards act are located, pursuant to a sale subject to an inspection by such inspectors, let it be assumed that a particular car of wheat contains 2 per cent of dockage. The licensed inspector who inspects and grades this particular car of wheat is required by the act and the rules and regulations of the Secretary of Agriculture thereunder (1) to determine the dockage in accordance with the official standards; (2) to calculate the dockage as provided for in the official standards; and (3) to show, as a part of the grade designation for the wheat on the certificate of grade issued by him, the amount of dockage (2 per cent) which he finds in the wheat.

"For the purpose of obtaining a uniform application of the standards with respect to dockage, there will appear in the Service and Regulatory Announcement, now in course of publication, a detailed description of the method recommended by the department for the determination of dockage, which method is used in all offices of Federal grain supervision, in connection with the handling of appeals and disputes taken or referred to the Secretary of Agriculture and all supervisional activities of such offices. Licensed inspectors in determining dockage in wheat in accordance with the official standards necessarily will use methods which will give results similar to the results obtained by the use of the method recommended by the department.

"In many instances the material determined to be dockage may contain undeveloped, shriveled, and small pieces of wheat kernels necessarily removed in properly separating the foreign material. In such instances the dockage may have a considerable commercial value.

"Assuming that the licensed inspector properly performs his duty, that there is no appeal, and that the parties interested comply with the requirements of sections 4 and 5 of the act, the manner in which dockage, determined and stated in accordance with the official grain standards of the United States for wheat, is to be assessed against the seller is a matter to be determined by the parties to the transaction.

"There are several methods used in various sections of the country as a basis of settlement for wheat in which dockage may be found: (1) The price to be paid may be for the net weight contained in the lot or parcel; that is, the gross weight of the wheat minus dockage; (2) or it may be a certain price per bushel for the gross weight of wheat less a

fixed discount for each 1 per cent of dockage contained therein; (3) or it may be a certain price for the net weight (the gross weight of the wheat minus the dockage) upon condition that the dockage is to be disposed of by the buyer at the market price and the proceeds turned over to the seller, in whole or in part, according to whether there is an agreement which may allow the buyer a certain percentage for services performed by him in cleaning the wheat.

"There is nothing in the act which would prevent the parties from using any of these methods. However, this department does not feel that it should at this time discuss the relative merits of these methods or express any preference among them. In any methods which the parties may see fit to adopt, it is the opinion of the department that any value which the dockage may possess should be paid for in some manner."

Become a real shareholder in the United States—buy a Liberty Bond.

FARM WEIRS.

The value of water has increased in the arid lands of the West with the development of the country to a point where there is now a general demand for accurate devices for the measurement of small streams of flowing water. A "weir" is one of the most commonly used devices for this purpose, and, in Farmers' Bulletin 813, specialists in the United States Department of Agriculture discuss the construction and use of these devices. The kinds of weir described in the bulletin are the rectangular, the Cipolletti, and the 90° triangular notch types with free fall, sharp crests and full contractions. Discharge formulas for these types are given in the back of the bulletin. These tables are so arranged that if the "head" or depth of water flowing over the weir notch is known the flow by cubic feet per second can be readily ascertained. A table of hydraulic equivalents enables this flow to be changed into miner's inches or statute inches.

Money paid for a Liberty Bond is no swap—it's a sure thing.

FRUIT EVAPORATORS AND DRIERS.

To furnish information for those who are undertaking the operation of plants for evaporating and drying fruits at this time, when the conservation of such products is especially important, the United States Department of Agriculture has just published a Farmers' Bulletin on the subject, "Commercial Evaporation and Drying of Fruits." The publication describes equipment and practices in both sun drying and evaporation of fruits by artificial heat, and makes suggestions for protecting dried fruits from insects and for preparing them for market. Copies of the bulletin may be had free so long as the supply lasts by application to the United States Department of Agriculture, Washington, D. C.

MARE AND FOAL.

Mother Must Be Fed Carefully at First in Order to Give Colt a Good Start.

"The mare should not be fed heavy grain or hay for the first 24 hours after parturition, and the first feeding should consist of a bran mash with a little cooked flaxseed meal in it," says a new Farmers' Bulletin of the United States Department of Agriculture, No. 803, "Horse Breeding Suggestions for Farmers." A little oatmeal soaked in warm water also is appropriate. If the mare is constipated give laxative feed. In two or three days, if doing well, she may be put back on dry feeds. In a week, if she is put back to work, she can have full feed. The mare may be put in harness, if light work is done, two or three days after foaling, but it is hard on the foal and may injure the mare's udder. It is best to turn the mare and colt in a lot where they can exercise and yet be quiet, but care should be taken at first to see the foal is not chilled by staying out too long in cool, disagreeable weather or by lying on cold, damp ground. They should not be on grass if the mare has not been on grass before.

Use Care in Working Mare.

In a little over a week the mare may be safely put to work provided she previously has been worked. If the foal is left in the stall, the mare should be brought to the stable in the middle of the forenoon and afternoon in order that the foal may get its food, but in no case should a foal suckle a mare that is very warm, as digestive disorders are likely to follow. If possible, do not use the mare for purposes which will keep her away from the farm for a long time, as the foal will either go too long without nursing or else will be worn out by following the mare. When left at the stable the foal should be kept in a roomy, clean box stall in company with another one of about the same age, if possible.

At about 2 months of age the foal will take dry feed, which should be supplied through the dam's grain box. This makes it necessary to furnish her with such feeds as ground oats, corn meal, and bran. A little later on a "creep" should be built in the stall or pasture, inside of which the foal can be supplied with grain without having to share it with its mother. A creep is simply a partition that will keep the mare out of the inclosure, but which is far enough from the ground so that the foal can walk under it. A handful of ground oats should be given at first, and the quantity should be increased slowly as the foal grows. The maximum amount should be about 1 pound a day till weaning time.

Raising the Orphan Foal.

It is not uncommon for a mare to die shortly after foaling, thus leaving her foal dependent on artificial feeding for its sustenance; and some mares furnish an insufficient amount of milk for their colts. Cow's milk furnishes a most logical substitute for mare's milk, but as the composition is somewhat different, certain changes or modifications are necessary in order that the supplied diet be not too dissimilar from the natural. The following table of percentages gives the average composition of the two kinds of milk:

	Water.	Protein.	Fat.	Sugar.	Ash.
Cow's milk.....	87.17	3.55	3.69	4.88	0.71
Mare's milk.....	90.78	1.99	1.21	5.67	.35

Milk from as fresh a cow as possible and which is not rich in butter fat should be diluted about one-fourth with fresh water. A tablespoonful of sugar and about 3 teaspoonfuls of lime water should be added for each pint. This mixture should be supplied to the colt at about body temperature. A bottle with a rubber nipple, or even a finger of a kid glove with a fair-sized hole in it fitted over the end of a spout of a vessel, such as a teapot, will serve as a convenient utensil in getting the foal to take the milk. If the finger of a kid glove is used it should be as clean as possible. At first about one-half a cup of milk should be given every hour, the quantity to be increased slightly and the intervals to be lengthened gradually as the foal grows older. In about 2 months skimmed milk may be substituted for whole milk, and in addition one of the following rations should be fed: One part of flaxseed meal boiled to a jelly, and 2 or 3 parts of bran; or 2 parts ground oats, 1 part corn meal, and one-half part flaxseed meal; or 2 parts of bran, 2 parts corn meal, and 1 part oil meal. Feed a double handful a day to start with, and increase the amount gradually.

Raising a foal by hand is not a job for the careless and indifferent. It requires patience, painstaking care, perseverance, judgment, and cleanliness. The vessel in which the milk is supplied should be scalded thoroughly each time it is used. Unclean receptacles for the milk and irregular intervals for feeding likely will cause scours. The quarters should be very clean and the orphaned foal should have company of some kind. Another foal is desirable, but even a calf is better than no company. A grassy paddock with abundant shade, fresh water, and protection from flies will increase the orphan's chance of proper development.

Scours.

A most common cause of scours in foals is when they get too much milk at irregular

intervals; consequently better management is the first step in remedying the trouble. Castor oil often is used to check scours, 1 or 2 ounces being the dose for young foals. Raw eggs also are used successfully. Blood meal is considered one of the best remedies, the quantity used being one-tenth to one-sixth of the grain ration. Powdered tannic acid also gives quick relief, the dose being 5 to 15 grains. For other than a mild case a competent veterinarian should be consulted.

Weaning.

Foals belonging to mares that work hard should be weaned earlier than those belonging to mares which are practically idle. While most foals are weaned when about 5 or 6 months old, it is well to remember that it is economical to feed a foal through its mother. However, in case the mare is again in foal, if she is allowed to nurse for over 6 months it may decrease the vitality of the next foal. If the foal is getting plenty of nourishment from grain, grass, and roughage, it will not be seriously set back when shut off from its dam's supply of milk. When taken away from its mother it should be placed with another foal of the same sex and age in an inclosure where they can not possibly get out or become injured. Feeding grain is not absolutely necessary if the foal is on good grass and previously has been accustomed to it, nevertheless it has its advantage, especially with draft animals. Foal feeding always should be practiced with foals belonging to mares that are worked.

The foal should not nurse more than once after it has been taken away. The excess milk from the mare's udder should be taken from 3 to 5 times a day, but enough should be left so that her system will start to absorb the milk, otherwise the drying-up process will be delayed unnecessarily. Not withdrawing sufficient milk will cause the udder to cake and spoil. Vaseline or lard rubbed on the udder will aid in keeping it soft.

A Liberty Bond is an investment, a savings bank, gilt-edged security.

NEW SERIES OF GRAIN REPORTS.

Representatives of the grain and hay division of the Bureau of Markets of the United States Department of Agriculture have left for the field. The organization of this division is being completed and a series of final conferences of field workers has been conducted in Washington. The Bureau of Markets will issue, through this organization, semimonthly market reports on grain and hay. Headquarters of the North Atlantic division, at New York, the Southeastern division, at Atlanta, and the Southwestern division, at Oklahoma City, will be in operation by October 12 or 13.

CLASSING COTTON.

Specialists in Marketing Explain Grades and Discuss Factors That Determine Fiber Values.

Cotton can not be sold on its merits until growers and buyers learn to know its market value. Guesswork now enters largely into the sale of this crop. Often the buyer judges the farmer's product all too casually and offers a safe price, which the grower often is obliged to accept because he needs money. This method of selling, which is responsible for heavy losses every year, will yield to a more businesslike handling of the crop when the producer studies and grades his product. What he needs to know about his cotton to be a judge of its value has recently been stated in terms readily understandable to the cotton grower by two specialists in the Office of Markets of the United States Department of Agriculture, in Farmers' Bulletin 802, "The Classification of American Upland Cotton." The bulletin tells how classing is done, how samples are taken, and explains the use of the official standards.

When selling most short-staple cotton—three-fourths to one inch in length—the grade is usually the only quality considered. Very little regard is paid to the length of staple, although cotton having staple of 1 inch is of unquestionably higher value than that only three-fourths of an inch long. Many times discrimination is so careless that even the grade counts for little with the buyer. More attention is paid to the staple in long-staple or premium cotton—one and one-eighth inches and longer—which usually is sold on type or samples. Cotton must be classified in order to determine the comparative values of the different qualities and to make buying and selling more satisfactory by providing descriptions when samples are not available.

More Uniformity Shown.

Price quotations from various markets throughout the United States where the official cotton standards were used during the 1915–16 season showed much more uniformity than existed before their general adoption. Low middling cotton of seven-eighths of an inch to 1 inch staple sold for approximately seven-eighths of a cent below middling, and good middling sold for approximately half a cent above middling.

To learn to classify all the grades and qualities of cotton requires years of experience, but the grower need not know them all. If he learns to recognize three grades—low middling, middling, and good middling—he will be able to deal with most of the white cotton grown in the average season. By practicing with a full set of types or official standards for comparison, copies of which are furnished at a small charge by the United States Department of Agriculture, a knowledge of the other grades may be obtained gradually.

Four qualities should determine the value of cotton fiber: (1) Grade, (2) color, (3) length, and (4) character.

Classification According to Grade.

With the reenactment of the United States cotton futures act, August 11, 1916, the following grades for cotton were promulgated: (1) Middling fair, (2) strict good middling, (3) good middling, (4) strict middling, (5) middling, (6) strict low middling, (7) low middling, (8) strict good ordinary, (9) good ordinary. This range of grades covers practically all white cotton grown in an average season. Middling, as the name indicates, is the middle or basic grade, and is the grade upon which the market quotations are based. All grades above middling should bring a higher price and all below should bring a lower price than that quoted for middling, the amount above or below varying according to the commercial differences in use where the cotton is marketed. When cotton is not white its nature or class is customarily indicated by modifying terms. At some markets there may be several classes of the same grade of cotton, that is, middling off color, middling spotted, middling yellow tinged or middling yellow, or middling blue stained.

The grade of cotton is determined by three factors: (1) Foreign matter or impurities; such as leaf, dust, sand, motes, and cut seed; (2) color; and (3) quality of the ginning.

Classification According to Color.

The color standards reestablished and promulgated immediately after the enactment of the cotton futures act, August, 1916, are as follows:

Yellow tinged cotton of the grade of low middling.
Yellow tinged cotton of the grade of strict low middling.
Yellow tinged cotton of the grade of middling.
Yellow tinged cotton of the grade of strict middling.
Yellow tinged cotton of the grade of good middling.
Yellow stained cotton of the grade of middling.
Yellow stained cotton of the grade of strict middling.
Yellow stained cotton of the grade of good middling.
Blue stained cotton of the grade of middling.
Blue stained cotton of the grade of strict middling.
Blue stained cotton of the grade of good middling.

It is estimated that on an average about one-fifth of the American cotton crop falls within these standards for color. The economic advantage of uniform standards for handling these classes of cotton is therefore obvious. Factors that influence the color of cotton are weather, insects, and soil.

Classification According to Length of Staple.

Long-staple cotton, with the exception of sea island and Egyptian, is classed according to grade in practically the same way as short-staple cotton. There is a greater difference of opinion concerning the length of staple than there is concerning grade. Experts vary considerably in their estimates of the

length of the same sample of cotton, sometimes from one-eighth to three-sixteenths of an inch in the longer lengths. This is often due, no doubt, to the fact that they do not "pull" the staple in the same way. A rule used for measuring the drawn sample, therefore, is not always a sure index of the length, for one classer may discard more long or short fibers than another. If, however, all branches of the trade had the same type or standard sample of cotton for 1 inch, 1⅛ inches, 1¼ inches, and so on, cotton could be compared with the standard, both being pulled in the same way, and doubtless a greater uniformity could be established.

Classification According to Character.

In addition to grade, color, and length of staple, the value of any cotton for spinning purposes is influenced very largely by its character which means the strength, body, drag, and uniformity of staple, all of which may be noted when the cotton is "stapled." These characteristics vary in cotton from year to year, owing to the season, soil, fertilizer used, and variety of seed planted. It has not been found advisable, therefore, to attempt to maintain uniform standards covering these variable qualities in the staple of cotton.

SAVE THE WHEAT.

Get the "Eat More Corn" Habit at Breakfast Time—Recipe for Corn Pancakes.

Order a "stack of corn" or a "stack of kafir" instead of a "stack of wheat" cakes at the hotel or restaurant. Pancakes made of corn or kafir corn or one of these grains with a little wheat flour are fully as palatable and nutritious as cakes made of wheat only, say food specialists of the United States Department of Agriculture. Millions of wheat cakes are consumed at the American breakfast table every morning. Get the "stack of corn" habit and save the wheat.

The department is urging restaurants and hotel proprietors to instruct their chefs to prepare and have ready for use batter for corn cakes each morning so that patrons may order corn cakes instead of wheat cakes. Corn cakes have always been popular on the family table. By featuring the "stack of corn" cakes on their menus it is believed patrons will be glad to form the "eat more corn" habit at breakfast time.

Corn cakes with sirup are appetizing and satisfying. The following recipe is recommended:

Corn-meal pancakes.

1 cup corn meal.	1/2 tablespoon sugar.
1 cup flour (wheat).	1 tablespoon melted butter.
2 teaspoons baking powder.	1 egg.
1 teaspoon salt.	1 cup milk.

Mix the dry ingredients, add melted butter, well-beaten egg, and milk. Bake like ordinary griddle cakes.

WHEAT GRADES HIGH.

Rumors That New Government Standards Would Work Hardship Proven Without Foundation.

A large part of this year's wheat crop has graded high at the markets—No. 3 or better—under the Federal wheat standards made effective this year. The United States Department of Agriculture calls attention to the exact figures because persistent false rumors have been circulated in the grain trade, and particularly among country shippers and producers, to the effect that under the new Federal standards for wheat very little of the marketed crop is being, or has been, placed in the higher grades. On the contrary, the requirements of the Federal standards for wheat are not such as to work hardship on the country shippers and producers, for under these standards high grades have been given to a heavy percentage of the wheat marketed.

Note These Facts.

The department calls attention to these facts:

(1) Of the Hard Red Spring wheat which arrived in Minneapolis during the months of August and September, 1914, 1915, and 1916, 76.7 per cent graded No. 3 or better under Minnesota State standards for wheat in effect at that time.

Of the Hard Red Spring wheat which arrived at Minneapolis during August and the first 22 days of September this year, 81.2 per cent graded No. 3 or better under the Federal standards.

In comparing the above facts, it should be borne in mind that whereas "No. 3 or better" under Minnesota State standards included the first four grades (No. 1 Hard and Nos. 1, 2, 3, Northern) only the first three grades of the Federal standards have been considered.

(2) Of the Hard Red Winter wheat which arrived at Chicago during July and August this year, 79.3 per cent graded No. 3 or better under Federal standards; of the soft Red Winter wheat which arrived at Chicago during the same period, 72.5 per cent graded No. 3 or better under the Federal standards.

Of the Hard Red Winter wheat which arrived at Kansas City during July and August this year, 89.9 per cent graded No. 3 or better under the Federal standards; of the Soft Red Winter wheat which arrived at Kansas City during the same period, 92.6 per cent graded No. 3 or better under the Federal standards.

SOME POTATO PARINGS.

Good seed potatoes, free of blight and rot, are always worth saving for one's own future crop, or to supply others.

Feed the cull potatoes to the hogs. Cook the potatoes thoroughly and mix with corn meal, shorts, or bran. Skim milk is a good addition.

Grading potatoes for market increases the possibilities of sales and raises the price received. Keep the culls on the farms and save the cost of hauling.

Potatoes add succulence to the dairy ration. Where corn silage is not available and there are plenty of small potatoes, a peck a day will give a marked increase in milk flow. They should be introduced into the ration gradually and should be run through a root cutter to avoid the possibility of choking the animal.

Your money works for the country, and for you—in a Liberty Bond.

MIGRATORY BIRDS.

Changes in Regulations—New Open Seasons Effective on October 15.

The United States Department of Agriculture announces the promulgation of amendments of the migratory bird regulations, to be effective on and after October 15, 1917.

One of the changes permits migratory game birds to be hunted from half an hour before sunrise to sunset during the open season, subject, however, to the provisions of State laws restricting shooting during that time.

Other changes in the open seasons are as follows:

In the States now having an open season from September 7 to December 20—Wisconsin, Minnesota, North Dakota, South Dakota, Montana, Wyoming, Colorado, and Idaho—the open season is changed to September 16 to December 31, both days inclusive. All of these States, with the exception of South Dakota and Wisconsin, recently amended their laws by opening the season on September 16 or later and closing it on December 31 or earlier. In South Dakota and Wisconsin the season closes on December 20 in accordance with the laws of those States.

Eastern Oregon and Washington.

The open season in eastern Oregon and Washington and in Nevada and Pennsylvania is also September 16 to December 31. The open season, October 1 to January 15, is unchanged in Rhode Island, Connecticut, that portion of New York known as Long Island, New Jersey, Utah, and that portion of Oregon and Washington lying west of the summit of the Cascade Mountains, which constitute the balance of the northern zone.

In response to numerous inquiries the department announces that the migratory bird regulations are not to be construed to authorize the hunting of migratory birds at a time when it is unlawful to hunt them under State laws.

A real money-back bargain—a Liberty Bond.

POTATO DINNER DISHES.

Some Suggestions for Utilizing a Food That Is Now Both Cheap and Plentiful.

"Are you eating your share of the country's bumper potato crop?" asks the United States Department of Agriculture in a recent statement. "Now that the tubers are once more plentiful and cheap they may well be given a prominent place on the dinner table," continues the statement.

The department makes the following suggestions in regard to the use of potatoes at dinner:

Potatoes at Dinner.

Potatoes may be freely used at dinner, the variety which we all like being secured by varying the ways in which the potatoes are served. Then, too, one should not overlook the fact that, since both of them are foods which are very palatable sources of starch, by eating more potatoes one can diminish the bread eaten and thus help to save wheat, which is such an important matter at the present time.

Many think that potatoes are at their best when prepared in the simplest ways—that is, baked or boiled—but even so some variety is possible, for they may be baked in their jackets, or with the skins rubbed or scraped off, or pared and baked in the pan with meat, the juice they absorb improving their flavor. The skins may be easily rubbed off new potatoes, and almost as easily from old potatoes, provided they are first dropped for 10 minutes in boiling water.

Potatoes may be boiled or steamed in the jackets, peeled entirely, or with only a ring peeled around the center. The boiled potatoes may be served as they are, or mashed, or riced. Such simple changes as these help to give variety.

Minted Potatoes.

Boiled potatoes are at their best when mealy, so, after boiling, the water should be poured off, a little salt sprinkled over the potatoes, and the kettle not quite covered, and placed on the back of the stove, so that they may "dry out." If you wish a novelty, in boiling new potatoes add a few mint leaves to the water in which they are cooked. In baking potatoes one should always remember that, to be at their best, they should be served as soon as they are done. If one can not serve them at once, the skin on one side should be slashed in order to allow the steam to escape, and the potatoes kept hot.

Fried potatoes are also favorites and the ways in which they can be either fried in deep fat or pan fried are numerous and are well known. Fried potatoes seasoned with onion are a common dinner dish, and one should remember that green peppers can be used with the onions or in place of them.

Potatoes with Sauce or Cheese.

Potatoes baked with white sauce and cheese, scalloped potatoes, and similar dishes can be used in place of macaroni and spaghetti, and potato dumplings can be used in place of wheat dumplings. Cooked in combination with other foods, in a meat pie, for instance, potatoes may be depended upon as the principal dinner dish. There are also a number of dishes, such as potato pudding, which can be used at dinner in place of sweets made of wheat flour.

Tested Potato Recipes.

Of the many possible recipes, the following are suggested as more or less typical:

Potato Soup.

3 potatoes, medium size.
4 cups skim milk.
1 small onion.
4 tablespoons butter or other fat.
2 tablespoons flour.
1½ teaspoons salt.
¼ teaspoon celery salt, or 1 stalk of celery cut in inch pieces.
⅛ teaspoon chopped parsley. A little cayenne pepper or paprika.

Boil the potatoes and when soft rub them through a sieve. Slice the onion and scald this and the celery with the milk. Take out the onion and celery and add the milk slowly to the potatoes. Melt 2 tablespoons butter or fat, into which mix the dry ingredients, and stir into the boiling soup. Boil one minute; strain, add the remainder of the butter, or fat, and sprinkle with the parsley when ready to serve. The parsley improves the looks and adds a little to the flavor, but may be omitted if this is more convenient.

Stuffed Potatoes.

A nice way to secure variety is to cut a slice from the top of each baked potato and scrape out the inside. Mash, season with salt, pepper, chopped parsley or chopped celery leaf, or onion juice (if liked), and butter, or savory fat, and heat in a little hot milk; add 2 well-beaten whites of eggs. Refill the skins, sprinkle with grated cheese or bread crumbs, and bake in a hot oven about 6 minutes.

Creamed Potatoes.

There are several different ways in which creamed potatoes may be prepared. (1) Freshly boiled or cold boiled potatoes may be cut into small cubes and served heated in cream sauce. (2) Wash, pare, and cut potatoes into small cubes. Put into frying pan with a few slices of onion cut up very fine, and parboil 10 minutes. Pour off water. Add one tablespoon butter, drippings, or other fat, seasoning of salt and pepper, and milk enough to cover. Cook for 15 or 20 minutes, or until the potatoes are well done and the sauce thick and creamy. It is necessary to stir the potatoes frequently to prevent sticking. The starch in the potatoes thickens the sauce. Creamed potatoes are particularly good to serve with fish or chicken.

Hashed Brown Potatoes.

Cut cold boiled potatoes into small pieces (2 cupfuls), season with salt and pepper, cook three minutes in one-third cup bacon drippings, stirring constantly. Let stand a few seconds to brown underneath; fold like an omelet, and serve on a hot platter.

These are very good with broiled or fried fish or meat.

Meat and Potato Pie with Potato Crust.

Boil meat, cut into small pieces. Mix with potatoes separately boiled and cut up, and put into a baking dish. Make a crust by mixing smoothly mashed potatoes to which a tablespoonful of shortening has been added, with enough flour and water to make them roll out easily. A pie made of a pound of meat will require five or six small boiled potatoes, a cupful of mashed potatoes, and 8 or 10 tablespoonfuls of flour, and should be baked about 20 minutes in a hot oven. Salt, pepper, and other seasoning, as onion and carrot, may be added to taste. A teaspoonful of baking powder makes the crust lighter.

Potato pudding.

½ pound mashed potatoes (5 small potatoes).
4 tablespoonfuls butter or good cooking fat.
2 eggs.
½ cup milk.
¼ teaspoonful salt.
½ lemon (juice and rind).
1 tablespoonful sugar.
½ cup raisins or raisins and nut meats.

Boil potatoes, mash, and add butter, eggs, milk, lemon juice, grated peel, and sugar. Beat all the ingredients together and bake in a buttered dish for three-quarters of an hour or longer.

TO MOTHERS OF LITTLE CHILDREN.

A series of articles on the care and training of small boys and girls at home is being issued weekly by the United States Bureau of Education. They deal with such topics as understanding children, outdoor and indoor games and occupations, playmates, plays and toys, books, stories, pictures, music, and pets. To receive the articles as issued, send name and address with request to be put on the mailing list for Mothers' Articles, to the Kindergarten Division of the United States Bureau of Education, Washington, D. C.

Become a shareholder of Humanity—buy a Liberty Bond.

While you're wearing a flag in your coat lapel be sure and have a Liberty Bond receipt in your coat pocket.

Your dollar in a Liberty Bond eventually comes back to you as a dollar, but in the meantime visits your farm to buy your products.

LIBERTY BONDS AN ASSET IN FARMING

Bradford Knapp, Chief of Extension Work in the South has presented the following thought to Southern farmers:

The year 1917 and the war with Germany present more than one opportunity for the men in the United States of America to become absolutely free. Do you want to become your own man and do business like the best business men in America?

The *Liberty Loan Bond* presents an opportunity for Southern farmers of which they should take every advantage. Every *Liberty Bond* is an insurance policy on freedom for the United States and at the same time is a splendid investment and an opportunity for many farmers to become self-sustaining and independent. You loan your money to the United States Government in the great, righteous cause of maintaining the liberty of the country as a free and independent nation, and at the same time you make yourself more independent financially than you ever were before.

Liberty Bonds are issued by the Government in denominations of $50, $100, $500, and some larger denominations. They bear interest at the rate of 4 per cent per annum. A *Liberty Bond* is like a mortgage on the United States Government and will be the best security in the world for a loan. One bale of cotton at its present price will more than buy a $100 *Liberty Bond*. If you have followed *safe farming* methods during the past year and have produced a large part of your food and feed, you may have extra funds out of the cotton crop, the tobacco crop, the rice crop, or other cash crops to invest in *Liberty Bonds*. With a few hundred dollars worth of *Liberty Bonds* in your hands you become independent.

Instead of having to give personal security or a mortgage or lien on your crop or live stock to finance your farming operations next year, or instead of having to go to the store and arrange for advances in the way of food and other necessary supplies to make the crop, you can take your *Liberty Bonds* to the bank, make your personal note, and put up the bonds as security without any indorser on the note or any mortgage on your property. *Liberty Bonds* draw 4 per cent, while your note at the bank would probably draw from 5 to 8 per cent. This, however, would enable you to finance your farming operations at the net cost to you of from 1 to 4 per cent, which is the difference between the interest on your note and the interest which the Government pays you on *Liberty Bonds*.

Merchants, bankers, and business men ought to be in favor of this procedure, because it will put more of the agriculture of the South on a cash basis, and they all know that a cash basis is much more satisfactory than a credit basis. The South has long been held back by lack of capital on the part of its farmers and by inability to finance its agriculture on a cash basis instead of a credit basis. *Liberty Bonds*, together with the high prices which will be paid this fall for farm products in the South, furnish an opportunity for every farmer to get a little working capital ahead.

Buy Liberty Bonds, as many as you can afford to buy, put them into some safety-deposit vault, and have them ready to help you finance your next season's operations. Besides doing your fair share in helping to win this war by raising food and helping to finance the Government, you will also be helping to finance yourself through saving out of your profits in farming and furnishing yourself with capital for future operations. This opportunity was never presented before and may never come again. Do not let it pass. Go and see your banker, *buy Liberty Bonds*, and be free.

Produce FOOD and FEED, follow SAFE FARMING, get out of debt, and save money for future operations by buying LIBERTY BONDS.

WEEKLY NEWS LETTER
UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., OCTOBER 31, 1917. No. 13

The Prussian Military Autocracy

DAVID F. HOUSTON, Secretary of Agriculture

WHAT is this Prussian military autocracy against which is arrayed four-fifths of the world? How has such an influence persisted in a nation which many have regarded as foremost in science, in sociology, and in some respects in community living? Does it really exist? Many Americans find difficulty in believing that there is such a force to-day in Germany. This is natural. Until recently they have for the most part thought almost exclusively in terms of German art, education, science, including medicine, and industry. For many generations Americans went to school in Germany. German university training was considered almost a prerequisite for academic advancement. German industry was known to be making giant strides. Germany was assumed to stand for the maximum of efficiency in everything. It was the home of science, the final expression of modernism.

In respect to all these things the world's impressions contained a large amount of error. Germany has never been supreme in science. In discovery, in creative science, and in invention she has lagged behind England and France and has been inferior to this country. Her peculiar merit has been that she has made a system of science, organized it back of industry and especially back of those industries which are fundamental to military pursuits and has applied it intelligently and persistently. Especially in applied chemistry has her achievement been marked. In industry her chief performance has been to organize it through every possible form of State aid or support. Prussia in particular has been highly organized at the top. She is really a great public corporation for military and industrial purposes. She is a feudal estate writ large and, as such, well administered. She has been overorganized and organized on an unsound basis; and there is truth in the assertion that much of her dissatisfaction with pre-war conditions was due to the unwholesomeness of her economic situation. In a measure she was trying to lift herself by her bootstraps. She was strong at the top and weak at the bottom. Taking it by and large, Prussia is not and never has been as efficient as the United States or Great Britain. These have been insufficiently organized at the top, but they have been immensely strong in their foundations; and what organization they have had has been in the main for peace and not for war.

> ***We Are at War:—***
>
> **Because Germany made war on us, sunk our ships, and killed our citizens.**
>
> **To assert and to defend our rights.**
>
> **To make good our claim that we are a free nation.**
>
> **To have the kind of institutions we wish.**
>
> **To live the kind of life we have determined to live.**
>
> ***—Secretary of Agriculture.***

Deceived by Appearances.

Americans, even those who travel and read much, have not concerned themselves deeply about foreign political institutions. They have taken note of what lay on the surface and have not always carefully examined it. They have observed that German cities are orderly and clean, that Germany is a confederation, and that suffrage for the Reichstag is universal. It was not unnatural for them hastily to assume that German institutions were modern, as her science was, and that they were therefore democratic. It is not uncommon for people to be deceived by names and appearances, especially in politics.

To understand Germany politically we must examine her history and fix our attention on Prussia. There are two Germanies to-day—modern Germany, Germany of the masses, kindly, orderly, and industrious; political Germany, governmental Germany, medieval, absolutist, militarist, aggressive. The latter is passing; the former is the Germany of to-morrow.

The Start of the Hohenzollerns.

About the time of the discovery of America, the Hohenzollern family ruled over an insignificant tract surrounding the village of Berlin. In 1611, its power

NONE TO SAY NAY.

"The Emperor declares defensive war, and there is no authority to determine what war is defensive and what offensive."—Secretary of Agriculture.

was extended by the union of the Mark of Brandenburg and the Duchy of Prussia. In 1640 a strong character, Frederick William, came into power. He exercised despotic rule, but put his house in order and developed a relatively strong standing army with which to make further headway by force as opportunity might offer. In 1688, the date of the Restoration in England, and the beginning of her orderly constitutional government, Frederick the Third, an ambitious individual, became head of the house. His title was Elector of Brandenburg and Duke of Prussia. He was anxious for recognition, for the title of King. The War of the Spanish Succession was about to begin. His overlord, the Holy Roman Emperor, needed assistance. Frederick was prepared to trade and promised the aid of his army in exchange for the title of Elector of Brandenburg and King of Prussia. This he secured in 1701. Here was the first phase of the contact with Austria, the last of which is seen in our own day in the complete subordination of Austrian to Prussian influence.

A violent, brutish person, Frederick William the First, began to reign in 1713. Like his ancestors he kept his eye on the main chance, husbanded his resources, and added to his army, which at his death numbered 80,000, an immense trained force for that day and time. He, too, was ready by force to add to his patrimony at the expense of any convenient neighbor. It was left to his successor to make use of what he had prepared. In 1740 the Emperor of Austria, Charles the Sixth, the last of the male line of Hapsburgs, died. He had bound the leading powers by solemn pledge to recognize as his successor his daughter, Maria Theresa. Frederick the Great promptly gave Maria Theresa strong assurance of friendship and support, having it in mind at the very time to commit a crime against her. He suddenly moved his army against her province of Silesia, and after eight years of desperate warfare appropriated it. He at least made no pretense of virtue, and is reported to have said: "Ambition, interest, and the desire of making people talk about me carried the day and I decided for war."

Prussia Unaffected by Liberal Movements.

Prussia was defeated and humiliated by Napoleon in a quick campaign in 1806, but the liberal movements of the period scarcely affected her. She bided her time and laid her plans. Her next considerable advance was made in 1864, when she induced Austria to join her in taking Schleswig and Holstein from Denmark. Austria received Holstein; and in 1866 Prussia picked a quarrel with her and quickly vanquished her, appropriating Holstein and annexing Hanover, Hesse, Nassau, and Frankfort, which had taken sides with Austria. Thus she rounded out her territory. When the Prussian Parliament protested that force was not a sufficient justification for what had been done to Denmark Bismarck replied: "Our right is the right of the German nation to exist, to breathe, to unite." The claim of a place in the sun, the doctrine of necessity, and the right of might are not of recent appearance in Prussian history. They have been the outstanding characteristics of her thinking and practice since she emerged from medieval obscurity.

The Crushing of France.

The next step was the crushing of France in 1870–71, the annexation of Alsace-Lorraine and the imposition of Prussian leadership on Germany under the guise of a confederation. No wonder Bernhardi wrote: "The lessons of history confirm the view that wars which have been deliberately provoked by farseeing statesmen have had the happiest results." No wonder Prussia believes that a great army is the cornerstone of her well-being as a nation and that war is a positive good if it succeeds.

THE JUNKER PYRAMIDED.

"There is no manhood suffrage in Prussia, in Germany, where it counts for anything. * * * The junker is not only on top, he is pyramided. Autocracy, absolutism, is supreme."—Secretary of Agriculture.

So Prussia has come to dominate Germany. She now seeks to dominate the whole of central Europe and a part of Asia; and, if she gains what she wants in this war, she will persistently lay her plans for the next great aggressive move.

Prussia is Germany.

Prussia is Germany. She has three-fifths the area and five-eighths the population. The German Empire is a federation only in name. Bismarck's aim was to make Prussia supreme in Germany and Germany supreme in Europe. He knew how to do the job. This is the underlying fact: Prussia is Germany and Prussia politically is feudal. In such a system sovereignty is the private right of rulers. The prince may deal with his people as private individuals do with their lands. Recently we had a clear, practical illustration of this in Germany. The ruler of Waldeck got into debt. He could not raise the money to equip his army. He therefore sold his rights, his possessions, and his peoples to the King of Prussia and went to Italy to live on his income. The people exist for the Government and not the Government for the people. Frederick William was not joking when he wrote: "Salvation belongs to the Lord and everything else is my affair," or again, "We are lord and king and can do what we will." Neither was the present Kaiser when he asserted: "We Hohenzollerns take our crown from God alone and to God alone are we responsible in the fulfillment of our duty." He was simply revealing the true inwardness of his royal medieval mind and of Prussian politics, speaking from the background of centuries of feudal traditions. Prussia is a feudal State. It practices paternalism on a large scale in this modern day as did the Duchy of Prussia on a small scale centuries ago. It asserts the divine right of the king and of aristocrats to rule.

Landowners and Industrial Leaders Control.

Prussian governmental arrangements today of all grades are the legal expression of the economic interests and domination of the large landowners and of their recent allies the great industrial leaders. Feudal estates still persist in the kingdom, with their principal strongholds in East Prussia, Posen, and Pomerania. In Prussia 31 per cent of the land is in estates of over 250 acres, large holdings for central and western Europe; in Posen 55 per cent, and in Pomerania 52 per cent. The average size of 8,365 estates in East Prussia is 1,132 acres; of 2,793 in Pomerania 1,380 acres. Many of these are very large and are owned by descendants of feudal lords. The great landholder, the junker, is an individualist, independent, militaristic, conservative, in favor of armed strength, condescending to inferiors, with a feeling for power, and with the instincts of a soldier, a supporter of monarchy as long as monarchy has a strong arm and supports him and his interests. At first the junker fought the new industrial class but a reconciliation was effected and recently the powerful leaders of the two classes have cooperated. The caste system prevails everywhere. Society is stratified and the individual in each stratum is trained for his duties in his particular sphere. Education and society, as well as the army, are organized on this basis; and there is no small

(*Continued on page 6.*)

NO CLASS CAN RULE.

"Granted that the ruling class (of Germany) does its paternalistic job for the people as well as such a job can be done by a few for the many, at best it must be inadequately done; for no part of the people can understand the needs of all the people and satisfy them as well as all the people can."—Secretary of Agriculture.

FARMERS' ENTERPRISES.

Activities of 5,424 Cooperative Purchasing and Marketing Organizations Reported in Survey.

Farmers' creameries and cheese factories and farmers' elevators are the leading types of cooperative purchasing and marketing enterprises among farmers in the United States, according to a careful survey by the Office of Markets and Rural Organization, reported in Bulletin 547, "Cooperative Purchasing and Marketing Organizations Among Farmers in the United States," just issued by the United States Department of Agriculture.

Number of Organizations.

The number of farmers' purchasing and marketing organizations in the United States is placed at about 12,000. Of these 5,424 gave reports of their activities. The creameries and cheese factories reporting nnmbered 1,708. They do an annual business of $83,360,648, and have an average membership of 83 farmers. The 1,637 farmers' grain elevators and warehouses reporting were located in 23 States, doing a total annnal business of $234,529,716. They have an average membership of 102 farmers. The 871 fruit and produce organizations do an annual business of $140,629,918. The annual volume of business of 213 cotton organizations is $34,392,258; of 275 cooperative stores, $14,552,725; of 43 tobacco organizations $6,746,270; of 96 live-stock associations, $9,482,592. The gross volume of business for all organizations reporting was $625,940,448.

Minnesota leads the States in the number of purchasing and marketing organizations among farmers. Of the total nnmber reporting, 18 per cent were located in that State. Iowa stood second, Wisconsin and North Dakota next in order. Farmers' elevators, creameries and cheese factories and live-stock shipping associations are the principal types of cooperative effort in these States.

Fruit and Produce Associations.

Fruit and produce associations are the chief forms of cooperative activity in Oregon, Washington, Idaho, and Montana. The farmers' grain companies are next in rank. In California 60 per cent of the organizations handle fruit and produce. Cotton associations lead in Texas, North Carolina, South Carolina, and Georgia, fruit and produce organizations second. Tobacco associations are found chiefly in Kentucky. Creameries form the larger share of farmers' cooperative enterprises of the New England States.

The new bulletin contains much valuable information concerning the financing and business practices of various types of cooperative associations. It includes a summary of State laws relating to the formation of cooperative organizations. It discusses the bearing which section 6 of the Clayton Amendment to the United States antitrust laws has on farmers' cooperative associations.

"SOAKING" SCALLOPS.

Shippers of Sea Food Not to Use Fresh Water in Cleaning Operations.

With the opening of the scallop season, shippers of the sea food are being warned by officials in charge of the Food and Drugs Act that it is unlawful to ship in interstate commerce scallops which have been soaked in fresh water, whether the soaking is a deliberate attempt to increase the volume and weight of the mollnsks or whether it is only incidental to washing operations. Even leaving the scallops in fresh water for a few minutes as when they are shucked into a pail of water will almost inevitably result in a change in condition which the food officials will hold constitutes adulteration.

How to Prevent Swelling of Scallops.

The swelling of scallops during washing can be prevented easily, the officials point out, by using for this purpose, clean, natural sea water or a brine made by dissolving 2 to 2½ pounds of common salt in 10 gallons of fresh water. Since washing is essential, shnckers and shippers are advised by the officials enforcing the Food and Drugs Act to use only sea water known to be perfectly clean or the artificial brine. Those handling scallops are warned also to drain the mollusks carefully and completely after they are washed. The presence of a material amount of free liquid is regarded by the officials as constituting adulteration.

Soaking Widespread Practice.

Soaking scallops has been a widespread practice in the past. Since the officials enforcing the food and drugs act have taken up the matter, however, warnings have been spread throughout the trade, and during the past two seasons numerous consignments of soaked scallops have been analyzed, seized, and destroyed. Prosecutions have been made in several cases and fines imposed; and other cases doubtless will come to trial soon. It is believed that these seizures and prosecutions, together with the warnings now being issued, will result in materially improved conditions during the coming season.

Assistance Given Shippers.

The officials in charge of enforcement of the food and drugs act do not confine their activities to the issuance of warnings and the making of seizures. Field inspectors advise and instruct shippers of scallops how to conduct their operations so as to comply with the law.

REDUCE HOG CHOLERA.

Proper Methods Will Prevent Large Loss—Work of County Agents Is Effective.

Hog cholera killed enough animals last year to have fed 1,000,000 soldiers a meat ration for five and one-half months. This loss is unnecessary, for hog cholera can be prevented to a large extent, as has been demonstrated by county agents working through the United States Department of Agriculture and State agricultural colleges in the Northern and Western States.

Hog-cholera prevention and control are possible through vaccination, disinfection, and the quarantine of infected herds. The local conditions largely determine the methods of procedure by the agents. They work with groups of farmers, teaching them how to vaccinate their hogs, confine and quarantine their herds, and disinfect their premises. The most effective campaigns, perhaps, have followed the uniting of the farmers into organizations by the county agents. Frequently these are farm bureaus, with committeemen in each community. This is considered an ideal organization to promote educational work relative to cholera. Cholera-control clubs are very effective when first organized and at work, but when cholera disappears from the county the organization tends to disintegrate. On the other hand the farm bureau is constantly engaged on other lines and is ever ready to handle cholera when it appears.

Lend Instruments to Farmers.

The work of the county agents is often supplemented by the services of specialists from agricultural colleges and the United States Department of Agriculture. In a number of States farm bureaus and cholera-control clubs have purchased instruments to lend to the farmers and have stored snpplies of serum to have it immediately available when needed and to lessen the cost of vaccination.

Reports to the department show approximately 2,959,322 hogs killed by cholera for the year ended March 31, 1917. These hogs would have made approximately 295,932,200 pounds of pork which would have fnrnished a meat ration for an army of a million men for 169 days. Roports of the agents also show that in counties and commnnities where campaigns were undertaken and the suggested program followed, the loss from hog cholera was very materially reduced. County agents in nine of the Northern and Western States report a saving of $92,547 in 1916, brought about by the vaccination of 10,527 hogs. From reports of 146 agents, showing a vaccination of 210,337 hogs, it is estimated that there was a saving of $1,848,862 as compared with

the deaths that would have been probable without vaccination. This saving does not include thousands of hogs that have escaped the disease by preventive measures adopted on the recommendations of county agents.

Personal Instruction Given.

In many counties the agents instruct the farmers personally how to vaccinate hogs, quarantine herds, and clean up and disinfect their premises. For instance, in Scott County, Mo., the agent lends the farm bureau's instruments to individual farmers. He vaccinates several hogs for the farmer and then has the farmer vaccinate a number under his direction. The farmer vaccinates the other hogs himself and returns the instruments to the farm bureau office. Serum is sold by the bureau to the farmers at cost. In this county 85 per cent of the 1,737 hogs vaccinated under the direction of the agents were saved. Before county agent work was undertaken there, hog vaccination for cholera was practically unknown.

In Seward County, Nebr., the farm bureau also lends instruments for vaccination to farmers and sells serum at cost. In Allen County, Ind., thorough publicity is given the presence of hog cholera in a neighborhood in order to stimulate interest in a public meeting called immediately in the community. The county agent gives an illustrated talk on the nature, prevention, and eradication of cholera, presenting it as a community problem and perfecting an organization which in every instance has prevented spread from the first outbreak.

Spread of Disease Prevented.

The special value of such organizations is that the disease is caught in the beginning and eliminated before it has had time to infect all hogs in a herd or spread to neighboring herds. The agent in Kingsbury County, S. Dak., reports that last year 16 different outbreaks occurred, with a loss of 154 head, whereas in 1915, 1,080 head were lost from cholera. In this county the community organization plan was followed. In Johnson County, Ind., where community meetings were held, the result has far exceeded the county agent's expectations, according to his report. Farmers cooperated heartily in preventing the spread of the disease, farms were thoroughly disinfected, hogs were vaccinated early, neighbors were notified of outbreaks in order that they might protect their own herds, and in consequence there have been less than 30 cases of cholera in the county this year, and in no instance has the disease gotten beyond control.

The dasheen, which can be grown in many sections where the Irish potato is not raised, compares in digestibility and food value very favorably with that tuber, according to the United States Department of Agriculture.

EGG-PRODUCING FEEDS.

In a Three-Year Experiment Specialists Learn Values of Rations Under Different Conditions.

Feed to produce one dozen eggs costs 10 cents with pullets, 14 cents with 2-year-old hens, and 19 cents with 3-year-old hens, in a three-year feeding test recently reported by poultrymen of the United States Department of Agriculture. These were the cost figures of feed at the time of the experiment, which began in 1912, and must be corrected to present prices. Tables of rations and costs presented in the report enable poultrymen to make these corrections when compared to 1917 prices. In Bulletin 561 of the department "Feed Cost of Egg Production," the specialists describe in detail this test, which was undertaken to compare the costs of various rations fed under general farm conditions. Much information relating to feeding under the various conditions also was learned in the experiment.

Test Included 366 Fowls.

Starting with 6 pens of 30 pullets each, the test was enlarged to include 16 pens containing 366 fowls. Most of the pens were made up of 30 standard-bred pullets, bred and reared under the same conditions and selected for vigor, standard shape, and color. Some flocks consisted of fowls of one breed, while others contained more than one kind of pure-bred fowls of the general-purpose type. Pens of cross-bred pullets also were used.

With the exception of three flocks which were confined to good-sized yards, all the fowls were allowed free range over several acres of rough land. Detailed records were kept of the feed used, the weight of the eggs, and careful observations were made of the conditions which affect egg production, such as molting and broodiness. The test was conducted on the experiment farm of the Bureau of Animal Industry, at Beltsville, Md. Summarizing the results of the tests, the specialists draw these conclusions:

Average Egg Yields.

The average egg yield for the first laying year in all pens was 131 eggs, and the highest pen average yield was 169.5 eggs. In the second year the average egg yield of all pens was 92.7 eggs, which decreased to 78.2 eggs in the third laying year.

The average value of eggs over feed cost the first laying year was $2.56 per hen, falling to $1.41 the second year, and to $0.79 the third year. The highest average value in any pen was $3.41.

The general-purpose fowls consumed annually 72 pounds of feed, which cost $1.13, while the Leghorns ate 55 pounds, which cost 87 cents.

Good results were obtained with rations both with and without oats. The use of this grain added variety to the ration without increasing the cost.

Effect of Feeding Beef Scrap.

Fowls not fed any beef scrap or other animal protein laid only 90 eggs during their pullet year compared with 137 eggs from the beef-scrap pens, and 84 compared with 83 in their second year. The eggs of the no-beef-scrap pens cost about 2.2 cents per dozen more to produce the first laying year, but these costs were about equal during the second year. The fowls not fed beef scrap laid very poorly in winter, thus materially reducing the value of their eggs.

Cottonseed meal used in place of beef scrap as a high-protein feed in the ration produced brown or greenish spots on the yolks of the eggs, especially in warm weather, making a considerable proportion of them unfit for market. Eggs were produced more cheaply and at a considerably greater profit on the beef-scrap ration.

Fish Meal as Source of Protein.

Fish meal at $7 a ton less than beef scrap proved to be a good high-protein feed, which can be used to advantage to replace beef scrap. The fish meal did not in any way affect the flavor or quality of the eggs.

General-purpose fowls allowed to select their own mash constituents ate a dry mash containing about 63 per cent corn meal, 19 per cent beef scrap, 9 per cent bran, and 9 per cent middlings. Leghorns ate a mash of about 66 per cent corn meal, 26 per cent beef scrap, and 4 per cent each of bran and middlings. No better results were obtained by this method of feeding than where the ground grains were mixed together in a mash.

Some Good Mashes.

Good mashes, as indicated by these experiments, may be made of 66 per cent corn meal, 26 per cent beef scrap, and 4 per cent each of bran and middlings, or 2 pounds of corn meal and 1 pound each of bran, middlings, and beef scrap, with a scratch feed in each ration of equal parts by weight of cracked corn, wheat, and oats, which is fed so that the hens receive about equal parts of scratch feed and of mash.

The Leghorns on free range gave a considerably greater egg yield than those confined to a fair-sized yard. This difference was less marked in the general-purpose hens.

Cost of Green Feed.

Sprouted oats fed as green feed to hens confined to yards cost about 10 cents per hen a year and 1 cent per dozen eggs, not including any charges for labor and equipment. The hens ate on an average in one

year about 1.3 pounds of oyster shell and 0.7 of a pound of grit, which together cost about 1 cent per hen.

The Leghorns did not lay as well in the winter as the general-purpose breeds, especially during their second year, but the Leghorns produced eggs about 3 cents per dozen cheaper during their first year, 6.4 cents cheaper in their second year, and 9.8 cents cheaper in their third year than the general-purpose breeds. One pen of Leghorn pullets produced eggs in their first year at a feed cost of 6.7 cents per dozen, while the value of the eggs per hen for the year was $3.41 over cost of feed.

Weight of Eggs.

The average weight of a dozen eggs from the general-purpose fowls during their pullet year was 1.53 pounds, 1.60 during their second year, and 1.63 during their third laying year. The eggs from the Leghorns averaged 1.45 pounds during their pullet year, and 1.49 during their second and third years.

The egg-production of the general-purpose fowls decreased 32 per cent in their second laying year. The decrease was considerably less in the Leghorns, their 2-year average egg production exceeding that of the general-purpose breeds by 19 eggs. The decrease in production from the second to the third year was only 4 per cent with the Leghorns, compared with 13 per cent in the general-purpose breeds.

The cheapest eggs are produced in the spring—during April, May, and June—while the greatest cost occurs in October, November, and December. The lowest monthly feed cost of a dozen eggs in any of these experiments was 4 cents, while in some cases no eggs at all were produced during the month.

WASTE IN HOLDING HOGS.

A loss of live weight of hogs and waste of feed result from the practice of purchasing local hogs in small lots and holding them in local stockyards until a carload shipment is collected, according to specialists of the United States Bureau of Markets. They point out that at this and other seasons when runs are light, it often takes local buyers four or five days to assemble enough small lots for a carload. As facilities for feed and watering are inferior in small yards, the hogs make no further gains on their feed and often suffer actual loss of live weight. Local buyers, therefore, would do well to specify a certain day for the delivery of lots from the various farms and load and ship without holding. Farmers also could club together to make up cooperative carload shipments on regular week days, thus saving the margin lost in individual small-lot selling.

HOW HE SAW THE LIGHT.

Farmer, Unresponsive to Government Suggestions, Changes When He Understands Purpose.

Out in Nebraska a county agent had experienced much difficulty in interesting a certain farmer in proposed agricultural improvement campaigns. This farmer, who was of much influence in the community, considered his own individual success a proof that Government cooperation with farmers is entirely unnecessary. A special representative of the extension office of the United States Department of Agriculture who visited that section was told of the case by the county agent. He went to the farmer and found him cold and unresponsive.

"You are standing in the way of your country when your country is at war," said the special agent to the farmer finally. "Do you realize that?"

"No," said the farmer, "I hadn't thought of it that way."

"Well, do think of it that way awhile," suggested the special agent. "The man who doesn't help his country at this time is hurting his country, and to hurt your country when your country is at war is a pretty bad thing to do, don't you think so?"

"You bet I do," said the farmer, thawing out for the first time during the interview. "You don't think I am that kind of a man, do you? I'll do anything for my country. I'll fight——."

Here's Your Chance.

"All right," said the agent. "Here's your chance. See that your farm and all the farms in your county increase their yields and their cultivated acreage. It isn't picturesque, but it is service—real service, great and genuine service. Now that's what the Government wants you to do. That's the purpose of these special county organizations. That's what these emergency county agents, like the one in this county, are urging. What about it? Your country wants you to help. Either you will or you won't—and if you won't help your own country, you are indirectly helping the enemy. What your country wants you to do is to plant more land, specialize on certain crops, and cultivate so as to increase production. It is all figured out to harmonize with a great national program, scientifically and efficiently arranged. The community organizations, cooperating in each community throughout the United States, are essential to the realization of this national plan—and that plan is absolutely necessary of accomplishment if we are to win the war. Now we are trying to organize this county in harmony with this plan. You have opposed it. Don't you see what that means?"

"When is that county meeting?" asked the farmer.

"To-night."

"I'll be there to-night and make a speech. You are mighty right—I hadn't thought of it that way. You'll never have another chance to insinuate that I am not with my country in this war."

The Nebraska farmer spoke that night. And by a unanimous vote the meeting arranged for organized agricultural work throughout that county.

VEGETABLE MARMALADES.

Less Expensive Than Those Calling For the Use of Fruit.

Vegetable marmalades or jams are made less expensively than fruit marmalades, because a less proportion of sugar is used and because the vegetables may be procured more cheaply. The extension department of the United States Department of Agriculture, cooperating with State agricultural colleges in the North and West, presents several suggested recipes for vegetable marmalades or jams, to be used the same as fruit products. The ingredients for some of these are shown below. In each case the mixture should be cooked slowly until it is thick and the ingredients are tender, and then packed in hot jars and sterilized.

Tested Recipes.

Carrot marmalade.—Two cups of ground carrot, 1½ cups of sugar, 2 sliced lemons, and 2 teaspoonfuls of ground ginger root.

Carrot and orange marmalade.—Two cups of ground carrot, the juice of 2 lemons, the juice and grated rind of 1 orange, 1 cup sugar.

Carrot and pineapple marmalade.—One cup of ground carrot, 1 cup of shredded pineapple, 1 cup of sugar, 1 sliced lemon.

Pumpkin and pineapple marmalade.—One cup of pumpkin peeled and ground, 1 cup of shredded pineapple, 2 cups of sugar, 1 teaspoonful of ginger; this to stand over night in a granite pan or for several hours until the juice is extracted. Add the juice and rind of 1 lemon and cook as heretofore stated.

Ripe tomato marmalade.—Twelve medium-sized tomatoes peeled and thinly sliced, 1½ lemons sliced, 1¾ cups of sugar; to be placed in stew kettle in layers, cooked in covered vessel until tender, and then to simmer until of right consistency.

Green tomato marmalade.—Two pounds of green tomatoes cut in cubes, 2 teaspoonfuls of bruised ginger root in cheesecloth bag, 2 cups of sugar, 2 sliced lemons.

North Carolina has made hunting game from flying machines illegal by prohibiting shooting waterfowl on any of the waters of the State from an airplane.

THE PRUSSIAN MILITARY AUTOCRACY—Continued.

truth in the witticism that "every Prussian is satisfied because he has somebody below him to kick." Royalty, the junkers, and the great industrial leaders run Prussia and Prussia runs Germany.

The Reichstag Not Representative.

"But," it may be asked "How can this be? The Reichstag is the popular house of the imperial parliament and its members are elected by universal suffrage. Is this not conclusive evidence of popular participation and control?" Let us see. In the first place, the electoral districts for the Reichstag have not been changed since they were formed in 1871 when Germany was dominantly agricultural, rural. The great increase in population has been in the cities and these are the homes of the liberals and radicals. It would have been dangerous to change the districts. This would have given the liberals and radicals full representation. To-day Berlin should have at least 20 representatives, and elects only eight. The number of voters in agricultural districts equal to those of Berlin returned 48 members. In 1907 twenty seats were won by the conservatives with an average vote of 10,500, and six by socialists with an average vote of 77,500. The average vote for all socialist members was 67,000 and for all conservatives 25,680. The significance of this can readily be seen when it is stated that out of 12,260,000 votes cast in 1912, 1,662,000 were National Liberal, 1,996,000 represented the strength of the Center party, 1,126,000 that of the conservative, and 5,750,000 that of the socialist and radical parties.

Little More Than a Debating Society.

But in reality this makes very little difference. The Reichstag is little more than a debating society. It was intended to be nothing more; to be a "sop" to the progressives. Its powers are great on paper, but exceedingly small in reality. It has the constitutional function of passing on the budget, but the principal revenue laws are permanent. The Reichstag can neither increase nor decrease the schedules nor make any change in the existing situation unless the King of Prussia wishes it. This comes about in this way: The Bundesrath is the upper house of the Imperial Parliament. Its members are delegates from the various States, representing several state governments and not the people. They vote according to instructions, and one member may cast the vote for any delegation. Fourteen members can defeat any measure and the Government of Prussia—that is, the King of Prussia—controls 20 votes.

The Reichstag does not really initiate legislation. Important measures are first discussed in the Bundesrath, then they go to the Reichstag and back to the Bundesrath for approval. The initiative, for the most part, comes from the chancellor, who is also prime minister of Prussia. The ruler, as Emperor, may instruct the chancellor to prepare a measure; as King he may order him to introduce it and may direct amendments to be made and prevent changes. As Emperor he may promulgate the law, and as King he administers it in Prussia. There is no imperial cabinet. The chancellor is the only minister. The other heads of departments act independently of each other but under the supervision of the chancellor. The chancellor is not in the slightest degree responsible to Parliament or to the people, but solely to the Emperor, and this by reason of the fact that he is also prime minister of Prussia and represents the King of Prussia in the Bundesrath. When von Bethmann-Hollweg became chancellor he emphasized this fact, asserting "I do not serve Parliament," adding that he would not play the rôle of servant of the people's representatives. The chancellor does not sit in the Reichstag as such, but as Prussian delegate to the Bundesrath, all members of which have a right to sit in the lower house and there to support their measures.

Of the 397 members of the Reichstag Prussia sends 236. The body can be dissolved at any time by the Bundesrath with the consent of the emperor. This power has been used effectively three times to break down the resistance of the Reichstag; in 1878, when it refused to pass the bill to suppress the socialists; in 1887, when it would not agree to fix the size of the army for seven years; and, in 1893, when it declined to change the military system. In each case the new body did what the Government demanded. Since the principal financial arrangements are matters of standing law, if the Reichstag refuses to pass a new budget increasing allowances, or passes one reducing them, the Government can be carried on on the old basis without any action on the part of Parliament. We find a parallel for this in English history in the days of the Stuarts.

The Bundesrath Dominates.

The upper house, the Bundesrath, consists of 61 instructed delegates, usually officers of state, frequently ministers, voting under instruction and appointed without fixed tenure. Of this number Prussia controls 20. This body and the King of Prussia dominates the Reichstag.

By the constitution, the presidency of the confederation belongs to the King of Prussia. He appoints the chancellor and most other officers, directs foreign affairs, commands the army and navy of the whole empire, inspects and disposes of troops, appoints all officers whose commands include the contingent of the state, and the selection of all general officers is subject to his approval. Prussian military regulations are enforced throughout the empire. The emperor declares defensive war, and there is no authority to determine what war is defensive and what offensive. Bismarck's principal aim was to create a powerful military state. All the world knows how well he succeeded.

The Emperor's Powers.

Many of the foregoing important direct powers belong to the emperor. Obviously larger powers accrue to him by virtue of the fact that he is King of Prussia and that Prussia is Germany. The Emperor, as such, has no material rights in legislation, no authority to appoint or to disapprove laws, yet he constantly does these things. He has no power to issue decrees, yet here also, says Zorn, the German publicist, "The monarchical principle, without legal provisions, and indeed contrary to them, has forced recognition. * * * We, Wilhelm, by grace of God German Emperor, order with the consent of the Bundesrath." Again Zorn says, "The inspiring forces of the world's history and the magnitude of his actual power have given the Emperor a position wholly different from what was legally intended and places him on a par with monarchical emperors—we see how formally inspired and even constitutional provisions

HOW THE KAISER RULES.

"The Reichstag is little more than a debating society. It was intended to be nothing more, to be a 'sop' to the progressives. * * *

"The Bundesrath is the upper house of the Imperial Parliament. * * * Fourteen members can defeat any measure and the Government of Prussia—that is, the King of Prussia, controls 20 votes."—Secretary of Agriculture.

WHO RUNS GERMANY.

" * * * There is no small truth in the witticism that 'every Prussian is satisfied because he has somebody below him to kick.' Royalty, the junkers, and the great industrial leaders run Prussia and Prussia runs Germany."—Secretary of Agriculture.

PLANS NEXT AGGRESSION.

"Prussia has come to dominate Germany. She now seeks to dominate the whole of central Europe and a part of Asia; and if she gains what she wants in this war she will persistently lay her plans for the next great aggressive move."—Secretary of Agriculture.

lose their force in face of the constraining necessities of national life." So the Prussianizing of Germany is complete. There is normally a higher law in Germany than the constitution. That law is the law of necessity or might.

Let us take a more intimate view of Prussia and ascertain what are the arrangements of this dominant member, what chance is afforded the people for expression. Take her parliament, the Landtag. What does it represent? Is there a government responsible to the people? The Landtag has two chambers, the house of lords and the lower house. The former is a mediæval body composed of princes of royal blood, members who are independent princes of the Holy Roman Empire or hereditary members designated at will by the King and others designated by him at will or on nomination of landholders. The King can control it at any time by appointing new members. It now has a membership of 300, one-third hereditary nobles with large estates, junkers, and one-third dominated by landholders, junkers. It is a class assembly, far removed from the people.

How Lower House Is Elected.

The lower house is composed of members elected indirectly by an electoral body. One member is selected in each district. The electoral body is selected in this fashion: One-third of it is designated by the large taxpayers who pay the first third of the taxes, one-third by those who pay the second third of the taxes, and the remainder by the rest of the voters. From 3 to 5 per cent of the voters choose one-third of the electors; from 10 to 12 per cent a third, or about 15 per cent of the voters choose 213 of the electors. In 2,200 districts one man selects a third of the electors. In 1908 the number of votes cast was 2,215,000. The social democrats, with 601,000 votes elected seven members. They should have had 105. The conservatives, with 356,000 votes, elected 152. They were entitled to 62. The clericals, with 502,000 votes, won 104 seats, instead of 88, their proper number. The liberal party got 28 instead of 40. In East Prussia the number of inhabitants to a representative was 63,000; in Berlin 170,000. Berlin had 9 votes and should have had 24. One-fourth the population in agricultural districts selected 161 members; one-fourth in the cities elected 41. Remember, too, that the ballot is not secret and that pressure is consistently brought to bear on the lower class voter. The municipal councils are selected in the same way. The classes rule.

The King Controls the Provinces.

The Province is the highest subdivision of Prussia. Its chief executive is appointed by the King. Its legislative body is not elected by the people but by legislative bodies of the next lower subdivisions, the circles and the municipalities. The president may veto the action of the body if it goes beyond its jurisdiction. Its measures must be approved by the King, who may dissolve it at will.

The circle is the chief local subdivision. Its principal administrative officer is appointed by the president of the Province. The members of its legislative body, the Kreistag, are divided between the cities and the rural districts, not more than one-half to the cities. The members assigned to the cities are not elected directly by the people but by the municipal assemblies, which represent property. The rural members are divided into two equal groups; the great landowner and large taxpayer of the rural community elect half; the other half are elected indirectly by a body composed (1) of those who pay a small tax; (2) of proprietors of manors; and (3) of electors selected by rural communal assemblies. To be a voter even for one of these electors who shares the doubtful privilege of joining larger taxpayers and owners of medieval manors in selecting half the rural members of the local assembly the other half of which is controlled absolutely by wealth, the individual himself must be a small taxpayer. This is certainly placing the individual, the man, politically at the vanishing point.

No Manhood Suffrage in Prussia.

There is no manhood suffrage in Prussia, in Germany, where it counts for anything. It does not count for anything so far as the Reichstag is concerned. Evidently in Prussia it is nonexistent. Landowners and men of industrial standing are strongly intrenched. They have dug themselves in and made their administrative and legislative trenches of reinforced concrete. The junker is not only on top; he is pyramided. Autocracy, absolutism, is supreme.

The Ruling Class Responsible for Crimes.

Granted that the ruling class does its paternalistic job for the people as well as such a job can be done by a few for the many, at best it must be inadequately done, for no part of the people can understand the needs of all the people and satisfy them as well as all the people can. Granted, I say, that the job, for a paternalistic job, is well done, still the essential nature of the regime is unsound, unmodern, medieval, and out of tune with modern tendencies. This governing class, believing in expansion by armed force, provoked war, violated the neutrality of Belgium, directed the submarine campaign, sweeping aside international law and custom built up through the centuries, sinking great passenger and freight vessels like the *Lusitania*, the *Arabic*, and *Sussex*, slaughtering women and children. It ordered the deportation of Belgian civilians, planned and executed the campaign of spying and violence in this and other neutral countries, and directed the submarine negotiations with all its evasions, cynicism, and duplicity, again and again making solemn promises, constantly violating them, and finally brazenly breaking their most solemn pledge to a great, patient, peaceful power. These people entertain the medieval notion that one nation's prosperity is another nation's menace, that it is to the interest and happiness of one nation to dominate other peoples and areas, and that small nations have no rights which strong nations need to protect, and have no justification for existence.

THE TWO GERMANYS.

"There are two Germanys to-day, modern Germany, Germany of the masses, kindly, orderly, and industrious; political Germany, governmental Germany, medieval, absolutist, militarist, aggressive. The latter is passing; the former is the Germany of to-morrow."—Secretary of Agriculture.

German People Must Express Their Will.

The President told us that for a little while he was unable to believe that such things would in fact be done by any government as have been done by Germany during this war. It was difficult for the American people to credit it. It is yet difficult to believe that the great masses of the German people, if they were fully informed, would sanction it. It is only through a knowledge of the character and medieval ideals of the few who dominate Prussia and Germany that we can begin to understand it. With such information, we can more easily appreciate what was in the President's mind when he said, "We have no quarrel with the German people. * * * It was not upon their impulse that their government acted in entering the war. It was not with their previous knowledge or approval. It was a war determined upon as wars used to be determined upon in the old unhappy days when peoples nowhere were consulted by their rulers and wars were provoked and waged in the interests of dynasties or by little groups of ambitious men who were accustomed to use their fellow men as tools. * * * A steadfast concert for peace can never be maintained

except by a partnership of democratic nations. No autocratic government could be trusted to keep faith within it and to observe its covenants. * * * We are accepting this challenge of hostile purposes because we know that in such a government following such methods we can never have a friend; and that in the presence of its organized power always lying in wait to accomplish we know not what purpose, there can be no assured security for the democratic governments of the world. We are now about to accept the gage of battle with the natural foe of liberty and shall, if necessary, spend the whole force of the nation to check and nullify its pretensions and power. We are glad now that we see the facts with no veil of false pretenses about them, to fight thus for the ultimate peace of the world and for the liberty of its peoples, the German peoples included; for the rights of nations great and small and the privilege of men everywhere to choose their way of living and obedience." Was he not clearly right when he asserted in his answer to His Holiness the Pope: "We can not take the word of the present rulers of Germany as a guaranty of anything that is to endure unless explicitly supported by such conclusive evidence of the will and purpose of the German people themselves as the other peoples of the world would be justified in accepting. Without such guaranties, treaties of settlement, agreements for disarmament, covenants to set up arbitration in the place of force, territorial adjustments, reconstitutions of small nations, if made with the German Government, no man, no nation can now depend on. We must await some new evidence of the purposes of the great peoples of the central powers."

LARGEST PEANUT CROP.

Careful Harvest Will Save It—Proper Methods of Gathering and Storing.

The largest peanut crop ever grown in this country will be harvested within the next few weeks. Whether it can be saved in its entirety for food and feed will depend upon the care with which it is harvested and stored, declare specialists of the United States Department of Agriculture. Accordingly a brief circular carrying suggestions as to the right ways to dig, dry, pick, and store the peanut crop has been prepared by the department for immediate distribution.

Guard Against Mistakes.

Many farmers, the specialists point out, are growing peanuts for the first time this year. Mistakes at harvest time may result in heavy losses to their crops. The methods which the specialists describe in their circular are those practiced by the most successful growers. Beginners are urged not to begin the harvest too soon as immature nuts shrivel and are light in weight when cured. No rule can be given as to the exact time to dig, but in general, harvest should begin when investigation shows that the vines have the greatest number of mature pods. In the lower South, where frosts do not occur until quite late, the vines have a yellowish appearance when the peanuts are mature.

The circular will be mailed to growers of peanuts on request.

NEW FARMERS' BULLETINS.

The Red Spider on Cotton and How to Control It. (No. 831.)

Trapping Moles and Utilizing Their Skins, With Special Reference to the Pacific Coast States (No. 832.)

Methods of Controlling or Eradicating the Wild Oat in the Hard Spring-Wheat Area. (No. 833.)

Hog Cholera: Prevention and Treatment. (No. 834.)

Modern Methods of Protection Against Lightning. (No. 842.)

How to Attract Birds in the Middle Atlantic States. (No. 844.)

How to Make Cottage Cheese on the Farm. (No. 850.)

The House Fly. (No. 851.)

The Guinea Fowl. (No. 858.)

Removal of Stains from Clothing and Other Textiles. (No. 861.)

The Common Mealybug and Its Control in California. (No. 862.)

How to Increase the Potato Crop by Spraying. (No. 863.)

Tobacco Hornworm Insecticide: Recommendations for Use of Powdered Arsenate of Lead in Dark-Tobacco District. (No. 867.)

Saving Vegetable Seeds for the Home and Market Garden. (No. 884.)

Harvesting Soy Bean Seed. (No. 886.)

Growing Winter Wheat on the Great Plains. (No. 895.)

Homemade Fruit Butters. (No. 900.)

THRIFT THOUGHT.

Don't throw away left-over skim milk, says the United States Department of Agriculture. It is a nutritious food, and every drop of it should be used. One way to utilize it is to make milk-vegetable soups.

Milk-Vegetable Soup.

To each 2 cupfuls of milk use 1 tablespoonful of flour, 1 tablespoonful of butter, two-thirds of a cupful of a thoroughly cooked vegetable, finely chopped, mashed, or put through a sieve, and salt to taste. Thicken the milk with the flour as for milk gravy and add the other ingredients.

Practically any vegetable except tomatoes may be used with the other ingredients as stated. If tomatoes are used, a little soda should be added to them to prevent the milk from curdling.

CORN EARWORM.

Best Way to Eradicate Troublesome Pest That Injures Several Different Crops.

Strike at the bollworm or corn earworm in the fall. Plowing has proved the most effective weapon against this $30,000,000 pest. The defenses of this ravager of cotton, corn, tomatoes, and tobacco are never so vulnerable as when the insect is in the pupal or wintering stage, an entomologist of the United States Department of Agriculture says in a recent publication intended to convey to farmers ways of making life very unhappy for this serious pest. The publication, Farmers' Bulletin 872, "The Bollworm or Corn Earworm," by F. C. Bishopp, describes the insect, its habits, and control methods, of which fall plowing is the most important.

Names of the Worm.

The worm has several names—cotton bollworm, corn earworm, tomato fruitworm, and false budworm of tobacco. Under these names it is widely known in nearly all parts of the United States, and the damage it does is increasing from year to year. The character of its attack on all the crops affected is similar. The caterpillars usually bore into and feed within the plant tissues.

When mature the insect is a moth or miller about 1⅓ inches across the wings when spread. It varies in color from a light brown or olive green to pale yellow, and it is commonly seen flying about in the evening. The larvæ or caterpillars are very small when first hatched. When full grown they are about 1½ inches in length, and their color varies from pale green to almost black. They leave the plant when fully fed and burrow into the ground, where they form a kind of cell in which they transform to the resting stage. The last brood in the fall stays in the ground at a depth of 4 to 6 inches until warm weather the following spring.

Important Step in Controlling Pest.

Thorough breaking of the land in which the worms have buried themselves for the winter, at some time in late fall or winter, is the most important single step in controlling this pest. The practice of fall and winter plowing, aside from bollworm control, is desirable because it conserves the moisture, puts the ground in better condition for planting and enables the farmer to plant at the proper time the following spring. Furthermore, fall plowing destroys eggs of grasshoppers, hibernating places of chinch bugs and other destructive insects. The bulletin mentioned also discusses other means of combating the worms as they appear on crops in the spring.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., NOVEMBER 7, 1917. No. 14

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing and Preparation the Next Few Weeks

NORTH AND WEST.

The Office of Extension Work in the North and West, United States Department of Agriculture, urges that the matters discussed below have immediate attention.

Don't Sell the Family Cow.

This might appear to many to be a good time to sell the family cow or the family dairy herd, because prices for cows are high and it is easy to sell; but suppose you do sell? What is gained? Prices of milk and butter are high—seem higher when you buy than when you sell. Perhaps we are crossing the "stream" referred to by Abraham Lincoln when he advised against swapping horses while crossing a stream. In any case, will it not be better if the family cow and the family dairy are kept by those who know how to make them most productive?

Next Year's Garden.

Begin to prepare your home garden this fall by supplying the soil with humus (decaying vegetable material) and fertilizers. Stable manure may be spread upon the surface and either plowed or spaded under.

In many parts of the country rye may be sowed yet this fall to be plowed or spaded under in the spring. Use about half a pound to one pound of seed to the square rod. The ground should first be cleared of weeds and crop refuse; but do not wait until all the crops are off. As soon as any part of the garden is cleared, however small the space, sow rye upon it at once. This may be continued until the whole garden is sowed, even though the last vegetable crops come off quite late in the fall, as rye will germinate at temperature only slightly above the freezing point. If the soil is loose, the rye may be scattered over the surface and covered with a garden rake. If the soil is hard it should first be hoed or cultivated 2 or 3 inches deep, as the ideal seed bed for rye is compact beneath and loose at the surface.

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MARKETING.

The following timely recommendations are made by the Bureau of Markets, United States Department of Agriculture:

Provide a Supply of Hay.

Feeders of stock in the northwestern part of the United States would do well to anticipate their requirements of hay as early as possible for the coming winter and spring. The nearest source of supplies should be located and arrangements made to have hay shipped in during the fall and early winter. A stock sufficient to carry their animals through at least part of the winter should be provided before the hay supply of their immediate territory is exhausted.

Fall Baling.

Throughout the Northwest, where practically all hay is stacked in the open, a large percentage of the crop remaining in stacks through the winter and spring is spoiled and becomes worthless so far as baling and shipping to markets is concerned. If this hay is baled in the fall and early winter after the rush of other fall work is past, when it will be found to be in a dry condition, many thousands of tons can be saved in the hay-producing sections for shipment to other localities.

Save Straw.

In sections where it appears there may be a shortage of forage, straw stacks—especially of oat straw—should not be burned. Well-preserved oat straw makes excellent roughage for stock, and any straw is worth preserving in localities where the hay crop is short or which are adjacent to sections where a shortage of forage exists. Throughout the grain belt straw should be saved both for feed and for fertilizer.

Poultry by Post.

At this time of the year farmers should try to find customers to whom dressed chickens and turkeys can be shipped by

(*Continued on page 3.*)

IN THE SOUTH.

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

Plant Oats in the Gulf States.

In the Gulf States and in the extreme South oats or rye may be planted with reasonable safety all through the month of November. Oats have proven profitable in many sections of the cotton belt; so much so that it is felt that the farmers should be advised to plant more oats than ever. Planting oats may be desirable from several standpoints. It helps to solve the labor problem, gives an early feed crop at comparatively little expense, furnishes a cover crop for the land during the winter months, and affords some grazing for live stock. It also gives opportunity to get a second food crop on the land next summer, in the way of peas, soy beans, or sorghum.

Fall Plowing.

Fall plowing should be continued as long as the ground is in proper condition, and as a rule soil is in better condition for breaking in the South during November than any other month. Demonstration records collected by the department for several years indicate that deep fall plowing and thorough preparation of the seed bed have greatly increased the yield of all crops on the average southern farm. A cover crop of rye or oats may be sown after breaking, but where this is not practical the land may be left in the rough until later, when the disk, roller, and smoothing harrow can be used to put it into condition.

Terracing and Drainage.

Now is the time to look after the drainage of the land, to clean out all open ditches, and put in tile drains where necessary and it is possible to do so. Lands subject to washing should be terraced and now is the best time to do it. The broad-bed terrace, properly constructed, has been very effective and is in-

expensive to construct, crops may be grown on all the land, and erosions and loss of fertility are reduced to the minimum. Farms of any size need roads through the fields. They should be graded and drained before the winter rains set in. This advice could be used for the main roads in sections where the farmers still must keep up the roads. A little grading, opening of drains, and use of drag will do much to prevent bad roads later.

The Velvet-Bean Crop.

Owing to the value of the velvet bean as a concentrated feed, and considering the necessity for increasing the production of feedstuff, as many of the mature beans as possible should be harvested. Mills for grinding beans are being established in almost every locality where they are being grown to any great extent. Experiments have shown that the ground bean and hull make a splendid feed, which has, up to date, found a ready market locally; but it may be advisable to place the product in a few of the larger markets this season. Where it is not practical or desirable to house the crop, farmers should see that the live stock gets the full benefit of it in the fields. Even where the mature beans are harvested, there are frequently large quantities of immature beans left on the vines which can be utilized by the hogs and cattle if they are turned on the fields after the mature beans have been picked.

Soy Beans.

A number of the oil mills are planning to crush soy beans after the cottonseed season is over. Soy-bean cake is a very valuable food, not only for live stock but for people, when used as a mixture with wheat flour. It would be well for the mills planning to use the soy beans to exert a little more care to see that a part of their output, at least, is well cleaned, sound, and of uniform quality before crushing. This selected stock could be recommended for use as a mixture with other breadstuff.

More Hogs, Sheep, and Poultry.

The best possible means of relieving the meat situation would be to increase the number of hogs on every farm. For the average small farmer the hog and poultry offer the most effective means of increasing the meat output at any time in the near future. A special campaign for increasing the hog production in the next 12 months is being planned and will be pushed vigorously by all of the extension forces in the Southern States. It should not be forgotten, however, that to increase the number of hogs profitably there must be ample food supply to keep them in good condition. It has been found by frequent demonstrations that the easiest and cheapest way to produce pork in the South is by furnishing a rotation of good pasture crops, such as alfalfa, crimson clover, vetch, oats, wheat, rye, barley, rape, etc., followed by such grain crops as soy beans, peanuts, sweet potatoes, cowpeas, etc. With an abundance of these crops in rotation, very little corn is required to produce large quantities of pork at a very moderate cost. The meat supply also could be increased materially by every farmer's adding to his supply of poultry on the farm. To do this most economically it again is necessary, in addition to the grain, to furnish abundant green food crops for them, such as clover, barley, etc. Many farms could carry a small flock of sheep and add to income as well as increase the food and wool supply of the country.

Live Stock.

Ample provision for the sheltering and feeding of the live stock for the winter should be made. All surplus male stock and other undesirable animals should be sold. It is very desirable, however, that female live stock at all suitable for breeding purposes be not disposed of at this time.

Orchards.

The orchards, especially the home orchard, should be given attention by cleaning up the weeds, cutting out dead timber, spraying, and resetting trees or setting out new ones where it is desired to increase the number.

Truck and Gardening.

Those who are contemplating growing truck for market gardens should get their hotbeds and cold frames in shape. Plant such crops as are suitable to the season in your section. Extra care should be given the winter garden. Small fruits should have due attention. Strawberry beds should be mulched during the fall months.

If there is any indication of sickness in your hogs, have an experienced man see them at once; the sickness may be hog cholera.

Sedges, rushes, chufa, and large swamp grasses are the natural food of billbugs; therefore destroy all such plants on land to be planted to corn next year.

Persons who are doing heavy physical labor and very active children need more energy-yielding foods than those engaged in mental work or light physical labor. Some of the principal energy-yielding foods are cereals, bread and butter, corn breads, white and sweet potatoes, cream, and other wholesome fats, and sweets.

MORE PORK.

Sows Must Be Bred at This Time in Large Numbers in Order to Insure Adequate Meat Supply.

To win the war we need more meat. To get an increased meat supply quickly hog breeding must be increased materially throughout the country, and in certain States an increase of from 25 to 50 per cent in the number of hogs is recommended by the United States Department of Agriculture.

The situation is of great importance. We must have plenty of meat for our armies and the armies of the allies in the field, and sufficient meat for our civilian population and the civilian population of the allies at home.

To have this meat, breeding animals must reproduce themselves so the offspring will be available for slaughter in the future.

Hogs can be increased quicker than any other kind of live stock.

Therefore a larger number of sows must be bred now than in recent years.

Feed Crops Are Abundant.

In addition to the fact that there is an imperative demand for more meat as a war measure, it should be taken into consideration that we now have an abundance of feed crops—corn, oats, and barley—with which to produce this necessary increase in the number of hogs. The demand for meat is certain, and it will be profitable to the farmer to market some of this heavy grain supply on the hoof.

The increase in the number of hogs for various States, as recommended by the department, is as follows: Missouri, 50 per cent; Alabama, 30; Iowa, 25; Kansas, 25; Indiana, 20; Illinois, 20; Mississippi, 20; Arkansas, 20; South Carolina, 15; Ohio, 15; Kentucky, 15; Tennessee, 15; Maryland, 10; North Carolina, 10; Michigan, 10; Nebraska; 10; West Virginia, 5; and Georgia, 5. The increase needed for the entire country is 15 per cent and is covered by the above schedule. Other States than those named should breed no fewer sows than last year.

The result of these increases will be to provide sufficient animals to make the meat that is absolutely essential to the feeding of our armies.

Much Bacon Needed.

Pork can be transported more readily and economically to troops in the field than can any other meat. Great supplies of bacon must go to the boys in khaki at the front. Unless now a larger number of sows is bred, the amount of meat we will require next year will not be available.

The estimated number of hogs is 4,000,000 less than it was a year ago in this country;

and in the face of this we need more hogs than ever before. How can we get them? By breeding sows at once.

Exportation of Pork.

The exportation of pork products has increased since the war began and will continue to increase during the length of the war. The foreign countries are devoting their farming energies to food and feed rather than livestock production, but they must have meat and they must get a large part of this supply from us.

During the last three months the price of hogs in the United States has been, on an average, more than twice as much as the average price for the five years from 1911 to 1915. In view of the large crop of feedstuffs in sight, however, it is believed that farmers will see the wisdom of taking every reasonable step to increase the supply of hogs and hog products.

MARKETING.

(Continued from page 1.)

parcel post. Many farmers have established a business in marketing various products direct by parcel post or express, by obtaining customers for poultry to be shipped at Thanksgiving time, and so pleasing the customers with the poultry furnished that they proceeded to obtain other products of the farm direct from the producer.

Corrugated paper-board cartons or cheap market baskets are suitable containers for shipping dressed poultry. The fowls should be wrapped in parchment paper, then in plenty of wrapping paper or newspaper, after which the whole package is placed in the carton or basket. The shipment should be thoroughly chilled before being shipped, and the parcel should be marked "Perishable."

Farmers should bear in mind that only good fowls dressed and packed carefully will be satisfactory to customers. Success in selling direct to consumers often depends on whether the customer is pleased with the first shipment of produce.

ARSENATE OF LIME EFFECTIVE.

A Michigan orchardist used about a ton of homemade arsenate of lime this year in comparison with arsenate of lead and received equally good results in spraying to control the codling moth, according to reports to the Bureau of Entomology of the United States Department of Agriculture. He effected a saving by the use of the arsenate of lime and plans to use it again next year. Reports as a whole indicate better results than usual this season in the control of the codling moth by orchardists in Michigan.

WAGE WAR ON RODENTS.

United States Department of Agriculture Advocates Organized Attack on Rats and Mice.

Rat clubs, the purpose of which is to trap, poison, shoot, "build out," and otherwise combat rats and mice, are advocated by the United States Department of Agriculture as effective agencies to help in getting rid of these pests and in making the country a safer, more healthful, and less expensive place to live in. Measures to combat the destructive rodents are especially desirable, in the opinion of the department, now that special efforts are being made to reduce waste and so assure a sufficient food supply in spite of war conditions.

The Rat's Destructive Record.

The rat, the department points out in a recent Farmers' Bulletin, "House Rats and Mice," is one of the world's worst animal pests. It lives in filth and carries filth with it on its visits to dwellings and storerooms, to pollute and destroy human food. It carries bubonic plague and other diseases fatal to man and so brings about the death of great numbers of persons annually. It destroys crops, eggs and young poultry, stored food, and fabrics; causes fires; ruins artificial ponds and embankments by burrowing; and, by gnawing, damages foundations, floors, doors, furniture, and much other property. The mouse, though smaller, is almost as destructive.

It would be eminently desirable, the bulletin shows, completely to exterminate rats and mice. The task is a difficult one, however, since these animals breed with alarming rapidity and adapt themselves to almost all conditions. Individual effort will accomplish little, since a dwelling or farm freed from the pests is soon repopulated by migration from adjacent territory. It is for this reason that the department advocates the waging of organized warfare on rats and mice, including the formation of rat clubs.

Existing Rat Clubs.

These organizations are not untried, the bulletin says, since they exist both in the United States and in some foreign countries. A club in Kent, England, destroyed 16,000 rats in three seasons at an insignificant cost. Women's municipal leagues in the United States have recently taken up the matter of rat eradication, notably in Baltimore and Boston. The department believes there is an excellent opportunity for these activities to spread, and expects boards of trade, civic societies, citizens' associations, women's clubs, both in town and rural communities, boys' corn clubs, Boy Scouts, and similar organizations to take up the work.

The Part of States and Cities.

In addition to the work of local organizations, there is much that can be done toward rat eradication by States and cities, the bulletin points out. Through laws and ordinances, builders and owners can be required to ratproof all new buildings, and specifications can be adopted in the construction of sewers, drains, wharves, railroad loading platforms, and other structures, that will prevent rats finding harborage about them. Better sanitary measures can be enforced about markets and stores and throughout cities, villages, and country districts. States may help the work by protecting native hawks, owls, and other enemies of rats which destroy fewer poultry than rats themselves. Farmers may do their part by rat-proofing dwellings and barns, by threshing grain earlier, and by moving it from the farm promptly, so that rats and mice will not be harbored and fed. Individuals everywhere may help by trapping and poisoning rats and mice and destroying them in other ways.

FOR WORMS IN CHICKENS.

Poultry Raiser Finds Remedy Recommended Very Successful.

"Very successful" is the way a Massachusetts poultry raiser describes a remedy for worms in chickens, suggested to him by a United States Department of Agriculture official after recommendation by investigators in the California Agricultural Experiment Station.

The poultry raiser added, in his letter of thanks, that thorough trials of other remedies had failed. That which he praised follows:

Suggested Treatment.

"Give the chickens no food or water for 24 hours before treating; then feed them half the usual amount of ground feed in which has been mixed finely chopped tobacco stems soaked for two hours in all the water they will absorb. One pound of tobacco stems (weighed before soaking) is sufficient for 100 birds. Two hours after the chickens have eaten the medicated mash, give them one-fourth of the usual ration of ground feed mixed with water in which Epsom salt has been dissolved, using 11 ounces of Epsom salt for 100 birds.

"To reduce the chances of further infestation all manure and loose dirt should be removed from the chicken yard and the pens and roosts thoroughly scalded and cleansed with hot water."

HANDLING PEANUT CROP.

Methods of Successful Growers Described by Specialists to Aid Saving of Largest Harvest.

To aid southern growers of peanuts, particularly beginners, in harvesting the largest peanut crop the country ever has grown, the United States Department of Agriculture has issued for immediate distribution a circular describing methods of digging, drying, picking, and storing, as practiced by the most successful growers.

If the big crop, now ready for harvest, is to be saved with a minimum of loss, great care in handling it must be taken, the specialists point out. The publication just issued has been prepared especially for farmers who have grown the crop for the first time this year.

When to Harvest.

Peanuts should be dug when the vines have the greatest number of mature pods. As no definite rule can be given for determining this time exactly, each grower must depend largely upon his own judgment, the specialists say. In the extreme South where frosts do not occur until quite late, the vines have a yellowish appearance when the peanuts are ready to dig. Beginners are warned not to dig too soon, as immature nuts shrivel and are light in weight when cured. A few early formed nuts are likely to sprout before digging time, especially if there is a period of rainy weather about the time the peanuts are maturing, but usually the loss by sprouting is not sufficient to justify premature harvesting.

Digging the Peanuts.

A turn plow with the moldboard removed to prevent throwing dirt over the vines, ordinarily is used for plowing peanuts from the ground. The plow should be regulated so that the peanut roots can be cut off at the desired depth. A machine potato digger will harvest from 8 to 10 acres a day, but it is rather expensive and its use is only practicable where a considerable acreage of peanuts is to be harvested. This machine removes the peanuts from the ground and also shakes off the soil, leaving the vines lying upon the surface.

Stacking the Vines.

When the peanut plants are dug with a plow, workmen shake the vines free from the soil and throw them in small bunches. The vines are thus left spread on the ground for 3 or 4 hours and are then placed in small stacks around a pole to cure. The poles are 3 or 4 inches in diameter and 7 or 8 feet long, and are set into the ground 12 or 18 inches. Two pieces of lath or scrap lumber used as a base about 18 inches in length, are nailed at right angles to the stacks about 8 inches from the ground. In starting the stack a few vines are divided and hung over the crosspieces to prevent the peanuts coming in contact with the soil. The stack is then built up by successive layers of vines, the pods being kept well to the center against the pole and the tops to the outside. The stems should have sufficient outward slope to shed water. A little dry grass or a few weeds may be used to form the top, although it is not advisable to use anything for topping that would prevent the circulation of air. A heavy cover or a covering of green or wet hay will cause the peanuts to spoil. After the nuts have been cured in the stack for 4 to 6 weeks, those intended for feeding purposes may be stored in barns or sheds. Curing in barns is not advisable either when curing peanuts for market or where the entire plant is fed to stock.

Picking and Threshing.

Peanuts should be cured in the stack at least three or four weeks before picking or threshing, in order to allow the pods to become dry and the nuts firm. Hand picking is a laborious and dusty task, but hand-picked nuts are the standard of excellence in the market. The expense of this method is greater than machine picking, and as it is difficult to get enough labor for hand work, machines are used by nearly all large growers.

Two types of machines are used for picking peanuts from the vines. The common grain thresher with a special cylinder for peanuts gives quite satisfactory results in removing peanuts of the Spanish variety from the vines. The peanut picker works upon an entirely different principle from the cylinder machine. The picking is done by dragging the vines over a horizontal frame covered with wire mesh. In addition to removing the pods from the vines these machines have cleaning and stemming devices. The picker type of machine does not break or injure pods, and for this reason it is especially desirable for picking peanuts that are to be sold in the pods or stored through the summer. If the peanuts are damp after their removal from the vines they should be spread on the floor or stored in a well-ventilated mouse-proof building. If the pods are dry they may be put into bags as they come from the machine.

Storage on the Farm.

Farmers should be prepared to hold the crop for a time rather than place it on the market during the fall, when the prices are generally lowest. A building suitable for storing peanuts need not be expensive, but it should protect them against injury from moisture and rodents, and provide sufficient ventilation. In most cases peanuts are stored in bags, because this is the most convenient way. The bags should not be piled more than seven courses high, and alleyways should be left every third or fourth row. Some growers store the peanuts loose in bins, bagging them only as they are marketed. The less peanuts are handled the better, on account of breakage.

Storage in Warehouses.

In many parts of the South peanut growers can obtain storage space in large commercial warehouses. It is much better to store the crop in such houses than in makeshift structures. Storage charges are not very high and the difference between the price paid at threshing or picking time and that paid a few months later usually will pay the cost several times.

SAVE GOOD YEARLING HENS.

Desirable to Keep Them in Order to Increase Poultry and Egg Supply.

Among farmers generally it is the common practice to sell the hens that are past a year old for poultry when they stop laying in the fall. Under the usual conditions this is good policy, for as a rule only about half of the flock lay well enough the second year to be profitable, and the farmer who has pullets enough to replace all his old hens sees no advantage in keeping any of them over.

This year, however, those patriotic farmers who desire to do their part to increase the poultry and egg supplies will find it desirable to retain a considerable proportion of the yearling hens. Farmers in the corn belt especially will find it to their interest to hold all the good yearling hens they have, making such addition to their poultry house equipment as may be necessary to properly accommodate both pullets and hens. Overcrowding must be avoided, as neither pullets nor hens will do their best.

Selecting Hens to Keep.

In selecting hens to keep over, preference should be given to those that molt in September or later, for they are—as a rule—the most persistent layers. Such hens may not be at this time the best looking in the flock. They are likely to be rough in plumage with somewhat shriveled combs and pale colored legs. These things, however, are merely incidental to the non-laying and molting period.

Hens that appear in prime condition at this time are those that molted in the summer because they stopped laying early. The exceptions which it may be desirable to retain are hens which reared broods in early summer and molted while running with the chicks.

DESTROYING CORN PEST.

Fall Plowing and Other Measures Recommended to Control a Black Beetle in the South.

A pest of corn, described by entomologists of the United States Department of Agriculture as the rough-headed cornstalk beetle, has appeared in the Southern States. During the spring of 1917 many reports of injury to corn by this beetle were received in Washington from Texas, Georgia, Louisiana, Arkansas, and Alabama, the damage being quite general and severe wherever the soil was such as to sustain the grubs. Studies of the pest by Government entomologists since the first outbreak in 1914 have led to the development of several measures of control, of which fall plowing is one of the most important and timely. A description of the pest, the damage it does, and methods of combating it have just been published in a new publication of the United States Department of Agriculture, Farmers' Bulletin 875, "The Rough-headed Cornstalk Beetle in the Southern States and Its Control," by W. J. Phillips and Henry Fox.

Description of Beetle.

The beetle varies somewhat in size, according to the entomologists, but usually measures about one-half inch in length. It is a stout, hard-shelled creature, jet black in color. It is thought to be distributed only in the Southern States. The damage is done wholly by the adult and consists in boring into the outer wall of the stalks immediately below the surface of the ground, making a large ragged opening, and destroying the tender growing point, or "heart," upon which the beetle feeds. The damage is done only during spring and early summer. Field observations show that outbreaks, for reasons as yet imperfectly understood, do not necessarily recur in successive years.

A summary of control measures recommended by the entomologists and described in detail in the bulletin may be outlined as follows:

Control Measures.

1. Eliminate all old pastures or waste land, especially low, moist areas, and drain such lands thoroughly.

2. Pasture hogs in waste or pasture lands that can not be conveniently drained and cropped.

3. Plant corn early, say, about April 20, for tidewater Virginia, and earlier for more southerly localities.

4. Give liberal applications of barnyard manure or commercial fertilizers whenever practicable.

5. Employ children or cheap labor to collect and destroy the beetles when a field first shows injury.

6. Do not allow corn to follow sod if possible to avoid it.

7. Plow sod land in late summer and early fall in order to destroy the pupæ of the rough-headed cornstalk beetle.

NORTH AND WEST.

(Continued from page 1.)

The advantages of sowing rye are: (1) It protects the soil from washing; (2) it retains nitrogenous plant-food material which might otherwise escape into the air during the fall and winter; (3) when turned under in the spring, it furnishes humus to the soil.

Save the leaves this fall. They are valuable as sources of humus and plant food. If burned, even though the ashes are saved, all of the humus is lost and much of the fertilizing value. They may be mixed with soil and a little lime and left in a pile to decay, or some may be spread upon the surface of the soil and spaded under at once. They are especially valuable for loosening heavy clay soils. Coal ashes are useful for the same purpose, though they have very little fertilizing value.

The Need for Seed Corn.

Farmers and farm boys can use the corn-gathering and corn-husking season to good advantage by making it the time for selecting and storing a double portion of choice seed ears. Many counties of North Dakota, Minnesota, Wisconsin, Iowa, and a few other corn-growing States will have a limited supply of good seed corn because of severe frosts. This lack must be supplied by more fortunate neighboring States, and the lack can be supplied with good corn at a good profit if care is taken in gathering and husking in the States and sections where the untimely freeze did little or no damage. And there can be no better time than now for selecting high-grade seed corn for next year's crop. The situation will justify saving seed corn as a patriotic duty, and it will more than justify saving it for the high price good seed may be expected to bring next spring. Save seed corn! Save more seed corn!

The Woodchopper's Chance.

"Woodman, spare that tree!" was the burden of a popular poem of years ago. A new word may be substituted for the old; "Woodman, *use* that tree" so that the coal supply may be used to better advantage. Use the tree for your own fuel; use it for cordwood to supply your neighbors' fires—at a profit to yourself—at the same time releasing for other use the freight car that would otherwise have to be used in hauling coal for your neighbors. Of course no sensible person advises the unthinking cutting of trees that should be saved for their beauty or to grow until they are ripe for harvest. The wise woodchopper will chop the trees that ought to be chopped down and up in order to make fuel for himself and others—all the while keeping in mind conserving the wood lot on forest for growth and greater usefulness next year and other years.

Improved Potato-Storage Facilities.

In many of the potato-growing sections there will be a congestion of potatoes at harvesting time, because of the heavy yield and because of a lack of freight-handling facilities by the railroads. This will make it necessary to provide means for caring for this crop until the market can absorb it. Many county agents are recommending that farmers with a large acreage construct temporary storage bins on their farms and also are recommending that community storage houses be constructed at convenient points to serve producers of small amounts of potatoes for which it is not profitable to construct individual storage pits. County agents in many of these counties are doing excellent service by assisting farmers and communities in planning storage warehouses according to plans furnished by the United States Department of Agriculture or by the Agricultural College in the State in which they work.

STOP SHIPPING POULTRY IN ICE.

That chilled dry-packed poultry reaches destination in much better order than the wet ice-packed product is shown, the United States Department of Agriculture states, by reports which are reaching it from various markets. The specialists of the department recently studied shipments of chilled dry-packed poultry and wet ice-packed poultry which had been shipped in the same car. The dry-packed birds were in excellent condition, while the wet-packed were unfit for use on arrival at destination. The dry-packed product stands delays in transit far better than the ice packed, especially during warm weather.

A number of packers, at the instance of the department, have changed from wet to dry packing. Many have reported that they have had uniformly good results with dry-packed poultry but have been having trouble with ice-packed birds. A number who have compared the two methods report that they will introduce the dry-packing system in all their branch houses at once.

Rats destroy plaster, woodwork, and furnishings, and weaken beams and foundations of structures.

Texas has exempted from taxation buffalo and catalo kept in captivity, while Oklahoma exempts deer, elk, and antelope.

YOUNG HORSES.

Practical Suggestions for Feeding and Management During Their Early Life.

Colts can be housed satisfactorily either in the stable or in an open shed. The main requirements, says Farmers' Bulletin 803, recently issued by the United States Department of Agriculture, are that the quarters be dry, sanitary, and provido fairly warm protection from winds. Several foals may run together if the weaker ones are not driven away from their feed by the stronger. The quarters should be kept clean and well bedded and occasionally should be disinfected. Lice are to be suspected when the animals get to rubbing and lose patches of hair. Thorough washing with the proper solutions of coal-tar disinfectants will kill lice. It costs money to feed lice, consequently efforts should be made to keep them down. The foals should be out in the open every day that is not stormy; it is harmful, however, for them to remain out in a cold rain. The foal should be taught to lead and to stand tied during the first winter.

How to Promote Growth.

Feeds that will promote growth should be supplied. Good, clean clover hay is palatable and slightly laxative. Timothy hay commonly is fed. Well-cured alfalfa hay free from dust is one of the best roughages for growing, but because of its relatively high protein content it generally is economical to supplement it with other roughage such as timothy, mixed hay, or corn fodder. Besides lending variety to the ration such a method of feeding alfalfa would offset any likelihood of kidney or bowel irregularities. Sheaf oats can be used to advantage to supplement other roughage. The animals should not be allowed to gorge themselves on dry feed. They should be given only what they will clean up readily, but at the same time enough feed should be supplied. Oats, corn, and peas, preferably fed ground, are suitable grains. Bran, oil meal, or gluten feed will add protein and lend variety. Cottonseed meal should not be fed to foals. Appropriate grain rations for the first winter are: Two parts corn, 5 parts oats, 3 parts bran, and 1 part oil meal; or 4 parts oats, 1 part corn, and 1 part bran.

Silage should not be fed to foals to any considerable extent. Sliced roots, such as carrots and sugar beets, are very palatable and have a cooling effect on the digestive system. The quantity of feed generally should be regulated by the appetite, although occasionally the appetite may be too ravenous to be a good indication. The general condition of the colt and the droppings should be observed daily. Usually not over 1 pound of grain per 100 pounds of live weight should be fed until the animal is 2 years old. A liberal supply of salt and good water and plenty of fresh air and exercise are essential for the proper development of young horses. Idleness succeeding exercise will cause constipation. It is often said that a horse is made during his first winter. Certainly this is a critical time in the animal's life, and at no other age will proper feed and attention do as much to make of him a good horse. If stunted during the first winter he never will gain proper size and shape.

Feed and Care During the Second Summer.

Foals should be changed from dry feed to pasture gradually and should not be turned on pasture until the grass is old enough not to become washy. Grass is an indispensable factor in the economical and proper physiological development of young horses. Frequently in protected bluegrass mountain valleys they thrive the year round on pasture alone. A visit to the foal pasture every few days may be the means of early discovering sickness or injury. The feet of the young animals should be noticed on such visits, and if the hoofs are too long or high on one side they should be trimmed properly. A failure to keep the feet level may result in cracked hoofs or crooked joints. Barbed wire should not be used for fencing the pasture; smooth woven wire is best. If a colt should be cut, disinfect the wound; and if it is a very large one, have it sewed up. The wound should be dusted frequently with boric acid or air-slaked lime until healed, and then greased with vaseline so the hair will grow properly. The animals should have plenty of fresh water and salt, and in hot weather they require shade.

Care and Feed During Second Winter.

During the second winter the feed and management should be nearly the same as for the first winter, except that the quantity of feed should be increased somewhat, the colt tied up in his stall, and handled frequently. Education by gentle and careful but firm handling at this age will save later much strenuous labor. In this connection Farmers' Bulletin 667, "Breaking and Training Colts," should be consulted.

The Three-Year Old.

The succeeding years are largely a repetition of those already discussed so far as feed and management are concerned, although the quantity of feed must be gradually increased as the animal grows. The prime general essentials for the proper development of horses from the yearling stage until they are put to work are: Fresh air, pure water, plenty of exercise, nutritious, palatable feed in sufficient quantity, and shelter from severe weather.

WINTERING EWES.

Save Grain by Feeding Legumes—Other Hays Require Protein Supplement.

Sheep can be successfully wintered with a smaller use of grain than is needed for other live stock. If in good condition at the beginning of winter and given the right kind of hay they can be carried through the winter without grain unless the lambs are to be dropped before going to pasture. All depends upon the kind of hay or other roughage used.

Legume hays stand at the forefront as a roughage for sheep. No other roughages approach them in feeding values. The coarse-stemmed hays like timothy, red top and bluegrass have very few leaves and therefore are poor sheep feeds. Hays having a large amount of timothy in them also are undesirable. Not only is timothy unpalatable to the sheep, but it causes serious cases of constipation. The dry timothy heads work into the wool, causing irritation to the skin, lessening the value of the clip and making shearing difficult. When timothy or other coarse-stemmed hay is fed to sheep in winter quarters it becomes necessary to use some supplementary feed to keep the sheep in condition.

Linseed Meal as a Supplement.

If any nonlegume hay is fed, supplementary protein feed is needed. Linseed meal is good since in addition to furnishing protein it counteracts the constipating effect of timothy hay. From one-quarter to one-half pound of linseed meal per ewe daily should be used, depending upon the size and condition of the animal and the other feed used.

In an experiment conducted at the Missouri station and reported in bulletin No. 120, the relative values of clover and timothy hays for wintering ewes were determined.

Fifteen ewes fed 2.9 pounds timothy hay and 0.35 pound grain per head daily lost 7.6 pounds each during the same time that another lot receiving the same weight of grain and clover hay gained 6.5 pounds. The 14 ewes fed clover hay dropped 16 strong lambs, while those fed timothy dropped 11 strong and 5 weak lambs. The lambs from the ewes fed clover hay gained more rapidly during the first 30 days than did those from the ewes fed timothy hay.

Oklahoma has joined the States which prohibit possession for sale of aigrettes, and in California the sale of aigrettes, birds of paradise, goura pigeons, and certain other birds used in millinery is now illegal.

FEEDING PULLETS.

Failure to Lay May Be Due to Underfeeding—Rations Must Be Substantial.

Every year at the beginning of winter many poultry keepers are disappointed and puzzled by the failure of apparently well-grown pullets to lay according to expectation. They can not understand why early pullets that seemed to be developing nicely and show the usual signs of being near laying should remain at that stage for weeks and sometimes for months.

Full Feeding Necessary.

Where the conditions are as described, the most common cause of deferred laying is an insufficient ration.

Underfeeding in the early fall occurs oftenest through the failure of the poultry keeper to increase the food given to pullets on range as much as is necessary to make up for diminution in the supplies secured by foraging.

Underfeeding after the pullets are put into winter quarters is usually due to excess of care to prevent them from becoming too fat to lay.

In either case the remedy is to feed the birds all that they will eat of a substantial ration furnishing in proper variety the food elements required, taking care at the same time to provide for as much exercise as will keep them in good condition under heavy feeding.

While pullets remain on range the only changes in diet usually necessary as cool weather comes on are to increase the quantities of food given, especially corn and corn products, and if green food on the range is running short, to supply what is required to make up the shortage.

The Change to Winter Quarters.

It is desirable to have pullets in their winter quarters about a month before they are expected to begin laying. Moving them at that stage does not retard laying, while if they are moved shortly before or after begining to lay the change may set them back several weeks.

Pullets that will not begin laying before winter sets in may be left in the coops which they occupied while growing as long as the weather permits them to range.

Winter Rations for Pullets.

When the pullets are in winter quarters and are dependent upon the feeder for all green food and animal food as well as for grain, one of the following rations will supply the variety required. The proportions indicated are parts by weight.

Ration No. 1.

Dry mash.	*Scratch feed.*
3 parts bran. 2 parts middlings. 4 parts corn meal. 1 part beef scrap or fish meal.	2 parts cracked corn. 1 part wheat, oats, or barley, or mixture of the three.

Green feed.

As available, in constant supply.

Ration No. 2.

Dry mash.	*Scratch feed.*
5 parts mixed feed (bran and middlings). 4 parts corn meal. 1 part beef scrap or fish meal.	Cracked corn. *Green feed.* Cabbage, in constant supply.

Ration No. 3.

Dry mash.	*Scratch feed.*
6 parts corn meal. 3 parts bran. 1 part beef scrap or fish meal.	Wheat. *Green feed.* Sprouted oats, cabbage, or mangel beets.

Ration No. 4.

Dry mash.	*Scratch feed.*
6 parts corn meal. 3 parts bran. 1 part beef scrap or fish meal.	Heavy oats. *Green feed.* Sprouted oats.

Ration No. 5.

Dry mash.	*Scratch feed.*
3 parts corn meal. 1 part beef scrap.	2 parts cracked corn. 1 part oats.

Selecting a Ration.

In deciding upon a ration a poultry keeper should be governed largely by the availability and cost of foodstuffs in his locality. The common grains do not differ extremely in composition and food value.

THAT SKIM MILK—SAVE IT.

Save every drop of skim milk. It is a valuable food. Use it in your kitchen and on your table.

It is valuable as a beverage, in cookery, as cottage cheese—too valuable to waste, whether it comes through your own separator or the separator at the creamery—too valuable to be thrown away, or fed to farm animals, if it can be used for human food.

At creameries where whole milk is handled, skim milk is often thrown down the drains. Creameries ought to make their skim milk into cottage cheese.

Farmers ought to make cottage cheese at home. Skim milk so used will supplement our meat supply, for cottage cheese is one of the best substitutes for meat. Use it in your cooking.

Make and eat cottage cheese and encourage others to use it.

Make puddings and soups and bread with skim milk.

The Dairy Division of the United States Department of Agriculture, Washington, D. C., will tell you how to make cottage cheese in the home or creamery and in what dishes it may be used.

CLEAN COTTON FIELDS.

Destroy Stalks, Get Rid of Weeds and Rubbish, and Reduce Boll Weevils Next Year.

Next year's boll weevils can be fought very effectively to-day. The Bureau of Entomology of the United States Department of Agriculture urges that all weeds and rubbish be cleaned out of cotton fields throughout the South at this time. All stalks still standing in the field should be destroyed by the time of frost or as soon thereafter as possible. This cleaning up will decrease the possible destruction by boll weevils next year. The species is greatly reduced in numbers this year, but although the boll weevil's strength is weakened at present he will try to regain some ground next year. To destroy weeds, rubbish, and stalks now is to destroy to a large extent his prospective army for that drive next season.

Quick Action Needed.

A concerted campaign throughout the South, if taken up immediately and pressed vigorously, will save a considerable amount of cotton next summer. Quick action is the watchword for this work. Reports to the Bureau of Entomology from all field men in the cotton belt and from State entomologists indicate that this has been one of the lightest boll weevil years since the pest entered the country. The only sections in which the damage has been comparatively heavy are the Sea Island sections of Florida and southern Georgia, and the northern portions of the Mississippi Delta. The cold weather of the early part of 1916 caused a falling back of the weevil around the entire limits of its dispersion last year and resulted in a great reduction of weevils throughout the South. However, about August 1, the weevils began to regain some of this territory, and reports indicate that there will be some points which have remained infested throughout the year. These places will be foci for dispersion this fall. Therefore, it is very important that a concerted campaign be undertaken now to clean up the fields and lessen further the boll weevil damage next year.

SUCKS ALFALFA SEED JUICE.

A black insect (*Alydus pluto*) pierces alfalfa seed pods which contain seed in the milk stage, and sucks the juices therefrom. This bug is being kept under close surveillance by Federal and State entomologists in Arizona. It has been reported present in great numbers at Ash Fork, Ariz., to the Bureau of Entomology of the United States Department of Agriculture.

NEW WORK IN CITIES.

United States Department of Agriculture Can Now Directly Help the Women in Urban Communities.

While the United States Department of Agriculture has for a long time been conducting work of benefit to city folks, it is now undertaking, directly and for the first time, to help the city woman in the work of promoting food production, food conservation, and household thrift. To carry on this work through demonstrations and through other educational methods, Congress made appropriations for women city agents of the department. The cities through their various organizations help to support the movement, which is carried on by the department in cooperation with the State colleges of agriculture.

The work of the Bureau of Chemistry and of the Office of Home Economics has been of benefit, in respect to foods, to city women, though not more so than to country women. The Bureau of Markets, through its city market work, affects both the country producer and the city consumer.

Those in charge of the home demonstration work in the various States welcome the authority and the opportunity to work directly with urban dwellers. In former years they have often held extension schools, meetings, and demonstrations in canning, preserving, cooking, and other lines of food conservation in towns and cities, for country women, on account of the convenience of holding them there, and the town and city women have incidentally derived much benefit from such meetings.

Plans of the Work.

The plans for the city demonstration agents call for the employment of workers who will cooperate with and work through organizations already in existence or help to form new ones where none exist. They will assist the city women in their problems concerning food production, prevention of waste, and the conservation of food. The actual lines of work include home gardening, poultry raising, canning, drying, pickling, preserving, and brining of fruits and vegetables, proper methods of storage in the homes to prevent loss, utilization of leftovers, economic methods of buying, prevention of unnecessary waste in the consumption of food, introduction of new foods as partial substitutes for meat and wheat flour, proper diet, and other activities.

How City Agents Are Organized.

In general these city agents are organized as a part of the extension work for women in the State. In some States this work is made a special division, while in others it is a very intimate part of the regular home demonstration work. In some instances the city worker is appointed as an assistant to the regular county home demonstration agent who already has influence in the city. In other cases city agents are appointed independently. Where there is a strong farm organization or county farm bureau the agent may be officially associated with the work of that organization.

KILLS ALFALFA CUTWORMS.

Poisoned Bran Mash Proves Successful, at a Cost of $1 per Acre.

Poisoned bran mash, costing approximately $1 per acre, has been exceptionally successful in killing alfalfa cutworms in Arizona, according to reports to the entomological service of the United States Department of Agriculture. About 98 per cent of the larvæ were killed by this treatment, and arsenate of lead seemed to be fully as effective as Paris green in the experiments. It was possible to tell three days after a field had been treated whether or not the method was effective. The following is the standard formula for preparing poisoned mash for this purpose:

To Make Poisoned Mash.

Fifty pounds wheat bran; 2 pounds Paris green or 4 pounds powdered arsenate of lead; 6 finely chopped oranges or lemons. Bring the whole mixture to the consistency of a stiff dough by the addition of low-grade molasses, such as is used in cattle rations, adding water when necessary. Distribute this bait by broadcasting over the infested field, taking care to sprinkle it thinly but evenly throughout the field. In case bran can not be obtained readily, middlings or alfalfa meal may be substituted.

With this mash distributed as directed there is no danger of poisoning cattle or domestic animals that graze in the field where it has been placed. The mash should be scattered in the field immediately after it is prepared. If, however, it is left standing about the house, it should be kept out of the reach of children.

WARNS AGAINST VENEERED HAY.

The United States Department of Agriculture urges buyers of baled hay to make certain that they do not buy veneered or faced bales as high-grade hay. Veneered bales contain high-grade hay on the outside while the center is packed with cheaper grades. The National Hay Association is opposed to the practice, and has asked the department to assist in eliminating it.

POULTRY-HOUSE FLOORS.

Earth, Cement, or Wood May Be Used–Comparative Advantages and Disadvantages of Each.

Poultry-house floors are usually made of either earth, wood, or cement. Where the soil is light and well drained the use of earth floors gives economy in construction and investment, and a more comfortable house. Where the drainage is not good, and on heavy soils, especially those containing much clay, floors of wood or cement are generally preferred.

Each kind of floor has its advantages and disadvantages, consideration of which will often lead a poultry keeper to use a different kind of floor from that most generally constructed in his locality.

Earth Floors.

A floor of earth needs to be renewed at least once a year. If the droppings that fall upon the floor are carefully removed at frequent, regular intervals, much of the earth is removed with them. If the regular cleaning of the floor is superficial, the earth of the floor to a depth of several inches becomes so mixed with droppings that its condition is very insanitary.

When the poultry keeper has a garden, the manure obtained by removing the earth floor of the poultry house will compensate for the labor of renewing the floor, and the new earth required can be taken from a convenient spot on his own land. When the poultry keeper must pay some one else to take away the old earth and bring in new, the cost will in a few years exceed the cost of a cement floor.

Cement Floors.

The principal fault of a cement floor is that it is likely to be cold and damp. These conditions may be corrected by covering the floor to a depth of an inch or two with dry earth or sand, using over this scratching litter of straw or wood shavings. Floors so treated require as much routine work to keep them in good order as earth floors, but the supply of clean earth required is much less and the work of annual renovation is eliminated.

Wood Floors.

Floors of wood are not now much used in poultry houses except when the space under the floor is high enough to be occupied by poultry. A wooden floor close to the ground soon rots, while any space under a floor not high enough to be used for poultry makes a harbor for rats and other vermin.

The wooden floor of a poultry house should have a light coating of dry earth, sand, chaff, or similar material to prevent the droppings of the birds from sticking to and saturating the boards.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., NOVEMBER 14, 1917. No. 15

WINTER CARE OF BEES.

Protect Hives from Cold, and Feed When Necessary, to Reduce Large Losses in Apiaries.

Beekeepers lose from one-tenth to one-half of their colonies every winter by failing to feed and protect them properly. That loss is too large, bee specialists of the United States Department of Agriculture believe, and in a statement issued to-day they declare these losses of important sources of sugar can be reduced to less than 1 per cent.

Wintering bees is a problem of conserving the energy of the individuals in each colony, the bee specialists say. Three conditions in the hive cause a waste of energy. First, when the temperature of the air surrounding the bees falls below 57 degrees it is necessary for the bees to expend energy to keep warm. Second, when the temperature of the air is above 60 degrees the bees use energy by flying from the hive, removing the dead that may have accumulated, and in any other activities which the needs of the colony require. Third, an abnormal activity resulting in energy loss is caused by long periods of adverse weather which do not permit the bees to fly from the hive to void their excrement. This last condition may result in the death of many thousands of colonies, the specialists say.

Protecting the Hive.

Protection of the hive and providing foods of good quality for winter stores will conserve the energy of the bees and enable the colony to pass the winter safely outdoors. If the hive is placed within a box about 6 inches greater in each dimension than the hive itself, and the space between filled with dry sawdust, leaves, or other insulating material, the necessity of heat generation by the bees is reduced to a minimum. A small tunnel through the packing material will make a passageway for the bees to the entrance of the hive.

Proper Food Stores.

Care must be taken to see that the hives have proper food stores. Food such as honeydew honey or honeys with a large percentage of gums, which may cause a rapid accumulation of excrement in the bees, are undesirable, but may be corrected by inserting a frame of honey in the middle of the brood chamber after brood rearing has ceased. Another remedy for undesirable stores is to feed about 10 pounds of a sirup made of 2 parts granulated sugar to 1 part of water. In either case when such food is given after brood rearing has ceased it will be placed by the bees in positions most available for immediate use, and the poorest food stores saved until spring, when they may be used safely.

As long as the temperature of the air surrounding the bees is maintained at about 57 degrees and no other irritating factor is present, the bees live so slowly that very little food is consumed, the colony being almost in a dormant condition. A normal colony of bees thus protected and fed not only will endure six months or more of confinement but have sufficient vitality left to be useful when spring comes.

Preparing Bees for Cold Weather.

1. Unite any weak colonies to make colonies of normal strength.
2. See that every colony has sufficient food stores of good quality to last during the winter—25 to 30 pounds are necessary.
3. Provide adequate protection against the wind and pack the hives well, as described in detail above.

ALFALFA WEEVIL EXTERMINATION.

An advertisement of a patented process for destroying alfalfa weevils is published in a recent number of a western agricultural monthly under the title "The Alfalfa Weevil, Its Spread and Methods of Extermination." This advertisement misinterprets portions of Farmers' Bulletin No. 741 so as to make it appear that the bulletin supports the claims of the proprietors of the advertised process that all other methods are expensive, impracticable, or ineffective as compared with theirs.

The facts in the possession of the United States Bureau of Entomology do not agree with the assertions of this advertisement, that the alfalfa weevil "will eventually ruin all alfalfa fields" and "throw idle large sections of our country," that the dust-mulch treatment "is found ineffective after two or three successive years of its use," that "the best results obtained by any test now adopted by the Government was a growth of 6 inches in eight days following the dust-mulch method," that spraying requires more expensive machinery than the steaming method which is advertised and that the Government's "experiments and investigations have cost in the neighborhood of half a million dollars."

STORAGE OF APPLES.

Factors Making for More Satisfactory Keeping of Fruit Discussed by Specialists.

That the responsibility for the keeping qualities of apples must be shared practically equally between growers and handling organizations on the one hand and cold-storage warehousemen on the other is the conclusion reached by specialists of the United States Department of Agriculture as a result of investigations to determine the factors of greatest importance in successful storage of the fruit.

The Parts Which Growers, Handlers, and Storers Must Play.

The investigations disclosed that if the fruit is to be stored most satisfactorily, and is to be got into the hands of the consumer in excellent condition, the grower's part should be, first, to produce the best possible fruit, sound, well colored and free from decay, insect injury, or skin blemish of any kind; and, second, to have it carefully harvested at just the proper degree of maturity. The handler's part should be to so handle the fruit in harvesting, hauling, grading, and packing that it will not be bruised, scratched, or injured. Growers, shippers, and warehousemen should cooperate to get the fruit into cold storage as soon as possible after it is harvested. The warehousemen should then hold the fruit at as low a temperature as possible without subjecting it to the dangers of freezing. The fruit should be carefully watched, with a view to disposing of it while in good market condition.

The factors making for successful storage are discussed in detail in Department Bulletin 587, Storage of Apples in the Pacific Northwest, recently published by the United States Department of Agriculture.

Importance of Sound Fruit.

Apples from orchards badly infected with northwestern anthracnose, and apples, generally, that are borne on trees lacking in vigor, are likely to decay early in their storage life, and well-colored portions of the skin of apples seldom, if ever, develop scald. These facts indicate the desirability of proper care of the orchards, including spraying and pruning. Keeping the trees open by pruning will admit the sunlight more freely and so facilitate coloring. The fact that scald develops generally on un-

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colored portions of the apple emphasizes the importance of allowing fruit to develop high color before it is picked for storage. Only gross negligence on the part of the handler, shipper, or warehouseman can nullify the effect of good color and sanitary orchard practices. On the other hand, if fruit is poorly grown, diseased, picked at an improper degree of maturity, or improperly handled before it is stored, the utmost care on the part of the warehouseman can not prevent the development of storage troubles.

In experimental work carried on by the department apples were stored under similar conditions when picked immature, mature, and overmature. In all cases the apples picked at maturity kept best. The best degree of maturity it was found is somewhat short of eating ripeness, but after the under color has developed beyond the leaf-green shade.

The importance of keeping the skins of apples unbroken was demonstrated. Every bruise and scratch furnishes a possible point of entrance for fungous organisms causing decay. Nail punctures and other injuries to the skin that are so small as to pass unnoticed by the average observer may result in serious loss through the entrance of decay organisms.

Prompt Storage Necessary.

The promptness with which the fruit is stored and ceoled after it is picked is the most important single factor in retarding natural decay, it was found. The more or less common practice of permitting the fruit to remain out of storage for several days in the orchard or packing house may shorten its cold storage life considerably, especially if the weather is warm. In the experiments, apples stored immediately kept in good condition in storage one month longer than apples held two weeks in packing houses before storage.

In the temperature experiments, some apples were held at 31° to 32° F. and others at 35° to 36° F. In all these experiments the fruit held at 32° was in better condition and could be held through a longer storage period than that held at the higher temperature. The practical effect of the higher temperature was the same as that of delay before storage. The life activities of the fruit advanced with greater rapidity than that stored at 32° and all fruit taken out of storage from time to time was found to be duller, yellower, and riper than that held at 32°. Thirty-two degrees was found to be a safe temperature, since the freezing point of apple juice is slightly lower than that of water.

Variety Affects Keeping Quality.

Experiments carried on in the Northwest show the Rainier apple to be the best keeping variety in that region. It remained in prime condition for market until May or later. In length of time in which they could be kept in such condition the remaining varieties tested ranked as follows: Hyde King and Arkansas Black, May; Winesap and Yellow Newtown, last of April; Rome Beauty, Northern Spy, and Missouri, middle of April; Delicious, last of March; York Imperial, Ben Davis, Banana, and White Pearmain, first of March; Esopus (Spitzenberg), last of February; Gano and Black Ben, Stayman Winesap and Salome, middle of February; Ortley, February; King David, first of February; McIntosh, middle of January; Tompkins King and Wagener, January; Jonathan, first of January; Arkansas (Mammoth Black Twig), January; and Grimes, middle to last of December. The most of these varieties are widely grown sorts, and though the keeping qualities of apples vary with the climatic and other conditions under which they are grown, the storage behavior of the different varieties noted above may be taken as a fairly accurate index of their relative keeping qualities when grown in other winter apple regions to which they are well adapted.

ONE BOY'S INFLUENCE.

A little boy in Graves County, Ky., is responsible for that county having an agricultural agent, a pure-bred live stock association, and a consequent improvement in general agricultural conditions.

A report of the State agent in charge of boys' agricultural clubs to the United States Department of Agriculture says that two years ago he received a letter from Earl Gary, a little boy at Mayfield, Ky., expressing a desire to join the boys' corn club and so win his way to the State fair. The State agent went to the town in response to this letter and assisted the boy in securing the necessary number of members to organize a club. The State agent called on the county school superintendent to interest him in the boy's plan. The school superintendent became interested in the work of a county agent, and the conversation resulted in Graves County securing an agricultural agent. In turn that resulted in the organization of a pure-bred live-stock association, of which the little boy was a charter member.

THE THREE B's.

A two-line report of a Kentucky county agent to the United States Department of Agriculture speaks volumes. This is his succinct account of his work:

"Had a meeting at the courthouse. I talked on whipping Germany with three B's—bread, bacon, and beans."

IRRIGATED-LAND CROPS.

Food Demands and Good Farming Make Grain Growing Advisable on New Areas to Be Irrigated.

Because the grain crops are well adapted to virgin land, irrigation farmers who expect to bring many new acres "under the ditch" in the near future, have a unique opportunity. With food crops in strong demand the opportunity goes hand in hand with good farming. And in order that farmers contemplating grain growing under irrigation may have all the advantages of present knowledge on this subject, a specialist in the United States Department of Agriculture has collected and made available this information in Farmers' Bulletin 863, "Irrigation of Grain," just published.

Grains Usually First Crops Grown.

As a rule, grains such as wheat, oats, or barley, are, for several reasons, the first crops grown on land being brought under irrigation, says the specialist. They are food crops and therefore in demand; they require less outlay in preparing the land for irrigation and in seed, and bring quicker returns than most other crops; they do well on new soil and help to put the soil in condition for other crops; and in most sections their need for irrigation corresponds to the period of greatest water supply. Most of the streams of arid regions are torrential, having a flood period in the spring and early summer and low water in the late summer. The grains make their growth during this flood period and are ready for harvest when the streams subside.

Grain is essentially a crop for the farmer with a very limited capital or for the farmer on new land, according to the bulletin mentioned. It is not advisable, however, to grow many crops of grain in succession on new land, as the yields fall off rapidly. The land should be seeded to alfalfa and grain used only in rotation after the first year or two. It is not a crop for revenue upon small farms nor where intensive farming is practiced.

Methods of Irrigation.

Methods of irrigating grain crops are restricted somewhat because of the fact that such crops cover the entire surface of the soil on which they are grown. The flooding method, sometimes objected to because of the loss by evaporation, is more suited to grain crops because they seldom are irrigated before the grain is high enough to protect the soil from sun and wind.

The border and basin methods of irrigation are also well adapted to grain crops and are described in detail in the bulletin mentioned. The proper time to irrigate, the quantity of water required, and the cost of growing grain under irrigation also are discussed.

COTTON GROWING.

How to Get Crop on Soils Infected with Wilt and Root-Knot—Raise Resistant Strains and Rotate.

Where cotton wilt is prevalent, as it is in many sandy regions of the South, cotton growers can be assured of the successful continuation of their industry only by growing wilt-resistant strains.

Where root-knot attacks cotton, the disease can be successfully combated by crop rotation.

Where both diseases are present, as they often are, the planter must make use of both the planting of wilt-resistant strains and of crop rotations if he is to produce cotton remuneratively.

These important facts are brought out and discussed, together with the farm breeding of cotton to produce wilt-resistant strains, in a publication of the United States Department of Agriculture, Farmers' Bulletin 625, "Cotton Wilt and Root-Knot."

Wilt.

The presence of the wilt disease is to be suspected when the leaves of cotton plants wilt and fall without any apparent reason. If a freshly wilted plant is cut and the interior of the stem or root is found to be browned or blackened, the disease is almost surely wilt. The disease also tends to dwarf the main stem of the cotton plant and particularly to reduce the length of and distance between the branches. The disease may kill the plants in early May or the first indication of its presence may be a sudden wilting and death of practically mature plants in mid-September. The first appearance of wilt in a field is usually in small irregular areas which enlarge each season.

The wilt is caused by a fungus, a minute moldlike plant growth which enters the roots from the soil and eventually shuts off part or all of the water supply of the plant. It is spread by direct growth through the soil and by any agency which will transfer spores or disease-infected soil such as cultivators, plows, and other tools, the feet of men or animals, wind, and drainage water. The disease occurs almost exclusively on soils of a sandy or sandy loam nature. It is more severe in wet seasons and less injurious in dry years.

Root-Knot.

It is much more difficult to detect cotton plants affected by root-knot than those affected by wilt. Badly diseased plants are distinctly stunted but not appreciably deformed and have a peculiar sickly yellowish-green color on both leaves and stem. Affected plants are the first to show the lack of water during drought and may wilt slightly in the middle of the day. If such plants are pulled carefully or dug up with a shovel, the roots probably will be found to be covered with swellings or galls from the size of a pinhead to half an inch or more in diameter. These galls are due to the invasion of the roots by eelworms or nematodes. If a knot is broken open numerous pearly white, rounded bodies about half the size of a small pinhead, the female nematodes, often can be seen with the naked eye. This disease is spread in exactly the same manner in which wilt is disseminated. Drainage water is perhaps one of the most important means of dissemination.

When root-knot occurs with wilt, the amount of loss is very materially increased as the wounds which the nematodes make in the roots furnish points of easy entrance for the wilt fungus. Whole fields are thus practically annihilated. Even the wilt-resistant varieties bred by the Department of Agriculture and not entirely resistant to root-knot should not be planted on land infested by nematodes until rotations of nonsusceptible plants have been employed to reduce the number of the eelworms.

Measures for Controlling Cotton Wilt.

The fundamental requirement for the control of cotton wilt is the planting of wilt-resistant strains. Because of the almost universal occurrence of root-knot with wilt, however, and because of the fact that the former disease increases the severity of wilt, rotation of crops combined with the use of resistant varieties becomes of vital importance in the control of wilt.

Among the wilt-resistant varieties which have been grown successfully in wilt-infested soil are Dixie, Dillon, and a number of hybrid resistant strains. Other strains are in process of development by the United States Department of Agriculture, the agricultural agencies of various States, and by individual cooperators.

Measures for Controlling Root-Knot.

Root-knot may be controlled, it happens, by measures which are at the same time highly desirable for southern agriculture for other reasons—rotation and diversification. The principles on which such rotations are based are (1) the use of crops immune to nematode attacks until the nematodes are sufficiently reduced so that susceptible crops may be profitably grown; and (2) the eradication of all weeds subject to root-knot. The use of crops that will return a profit in the upbuilding of the fertility of the soil also is an important consideration. Every farmer must work out for himself the particular rotations suited to his farm and to his type of farming. In order that he may be assisted in this the following lists from the bulletin are given:

Some crops most severely attacked by root-knot.

Bean, soy.	Fig.
Bean, Lima.	Lettuce.
Beet.	Okra.
Cantaloupe.	Peach.
Carrot.	Pecan.
Celery.	Pomegranate.
Clover, bur.	Potato.
Clover, crimson.	Salsify.
Cowpea (all varieties except Iron, Brabham, and Monetta).	Squash.
	Tobacco.
	Tomato.
Cucumber.	Watermelon.
Eggplant.	

Plants less severely injured by root-knot.

Alfalfa.	Pea, garden.
Asparagus.	Potato, sweet.
Bean, snap.	Radish.
Cabbage.	Spinach.
Clover, sweet.	Strawberry.
Collard.	Sugar cane.
Cotton.	Vetch, common.
Mulberry.	Vetch, hairy.
Onion.	

Crops largely or entirely immune to root-knot.

Barley.	Grasses (nearly all).
Bean, velvet.	Kafir.
Beggarweed, Florida.	Millets (nearly all).
Chufas.	Milo.
Corn.	Oats, winter.
Cowpea, Brabham.	Peanut.
Cowpea, Iron.	Rye.
Cowpea, Monetta.	Sorghum.
Grass, crab.	Wheat.

If land is very badly infested with nematodes as well as wilt, a two-year or three-year rotation with immune crops is recommended before susceptible crops, including cotton, are grown. The latter crops should not be grown for more than one or two years thereafter before the rotation with immune crops should be repeated. When the infestation is less severe, a one-year or two-year rotation will do much to put the land in condition to grow the crops desired.

Best Rotations to Use.

While no recommendations can be given that will apply to all situations and soil types, a typical rotation that can be modified to fit any condition is suggested. For land infested with both wilt and root-knot the following treatment has been successfully used by many farmers: Beginning in the fall, sow winter oats if they can be gotten in early enough to make a fairly good growth before it is necessary to plow the land for the next crop. Plow the oats under for green manure and plant corn with Iron, Brabham, or Monetta cowpeas between the rows, putting in the corn at the usual time, about March 15 to 20 for middle Georgia and South Carolina. In the fall sow a winter grain; this can be cut for hay or allowed to ripen. Cowpeas, either the Iron, Brabham, or Monetta variety, may then be broadcasted or, better, planted in 2-foot drills, where they can be cultivated once or twice. The cowpeas may be saved for seed or cut for hay and followed by another crop of winter grain. These should be plowed under in the spring in time to plant a wilt-

resistant variety of cotton the third year. Wheat, rye, or barley may be substituted for oats as a winter grain crop, and velvet beans for the cowpeas in the most southern districts. Any other immune crops may be used in the rotation.

Distribution of Wilt and Root-Knot.

Cotton wilt and root-knot occur to a greater or less extent in every cotton-producing State from North Carolina to Texas. For the most part, the wilt infestation is confined to sandy land and, in general, the lighter the soil the heavier the infestation. The areas where wilt is of most general and serious occurrence are southern and eastern South Carolina, southwestern Georgia, and southeastern Alabama. It is probable that the disease will eventually be found in nearly all the cotton sections having sandy soils. Root-knot occurs even more generally than wilt in the same areas and soil types. Wherever sandy soils occur in the cotton belt, root-knot is to be looked for.

Losses Due to Wilt and Root-Knot.

While it is difficult to form a very accurate estimate of the damage caused by these diseases, an estimate based on a farm-to-farm survey of a typical county indicates that root-knot alone causes a direct loss of thirty-five millions a year. No estimates have been made of losses due to wilt, yet it is highly probable that the annual damage would total several millions.

MEAT ANIMALS GAIN IN PRICE.

The prices received by producers for cattle, sheep, and hogs, September 15, and chickens, October 1, have gained 52.7 per cent in the general average from 1916 to 1917, according to the latest report of the United States Department of Agriculture. The advance for beef cattle per 100 pounds, live weight, was from $6.55 to $8.40, or 28 per cent; for veal calves per 100 pounds, from $8.77 to $11.08, or 26 per cent; sheep per 100 pounds, from $6.25 to $10.05, or 61 per cent; lambs per 100 pounds, from $8.22 to $13.06 or 59 per cent; hogs per 100 pounds, from $9.22 to $15.69, or 70 per cent, and chickens, from 14.3 to 18.1 cents per pound, or 27 per cent. Sheep, lambs, and hogs have far exceeded beef cattle, veal calves, and chickens in the upward price movement at the point of production.

The highest price at the farm per 100 pounds, live weight, reached during the year under review, was $8.70 for beef cattle in May, $11.08 for veal calves in last September, $10.15 for sheep in May, $13.06 for lambs in last September, $15.69 for hogs in last September, and 18.1 cents per pound for chickens October 1 of this year. The latest farm price reported is the highest one of the year for veal calves, lambs, hogs, and chickens; the May price was the highest for beef cattle and sheep.

CORN FESTIVALS.

Particularly Appropriate That Emphasis Should Be Placed Upon This Crop at the Present Time.

No seed where labor is not free
Can yield such life as yields
The golden grain of liberty
That crowns Columbia's fields.

We love the bread that saved our sires
When hungry and forlorn,
And every autumn feast inspires
Our praise of Indian corn.

—Theron Brown.

Why not have a harvest festival in your town or community this fall? And more especially, why not arrange for a corn celebration in recognition of the great American crop which saved our pioneers and upon which we must now so largely depend to help us feed the world?

It would seem particularly appropriate that all over our land harvest festivals should be held this fall—with corn given emphasis wherever possible. In this way we may renew one of the oldest community customs, establish a pleasant social custom, and at the same time pay a well-merited tribute to American corn or maize, which from the time of the settlements at Jamestown and Plymouth, and throughout the Colonial period, was the chief reliance for food. Indian corn it is called, because from the Indians the early settlers learned how to cultivate and cook this grain, so different from those of the Old World, from which they had come. Along with the corn the Indians planted the pumpkins or squash and sometimes beans.

Corn celebrations may be conducted in connection with fairs or meetings of agricultural organizations, or may be arranged independently to take the form, for instance, of festivals at the school or church with a corn husking, say, or fruit drying or preserving bee, a corn supper and a literary program, etc.

Extend the Use of Corn as Food.

The more extensive use of corn may be promoted at these festivals by serving attractive menus of dishes made of corn. Apples, beans, potatoes, and pumpkins if combined intelligently with corn will furnish material for a real "feast." Farmers' Bulletin 565 of the United States Department of Agriculture furnishes many recipes from which selection of dishes may be made. Milk and eggs may be used with the corn to produce a well-balanced meal.

Sweet corn, canned, may provide a cream soup, or a chowder, or corn pudding, or fritters, or be combined with potato in a salad.

Variety of Dishes.

Coarse white hominy or samp prepared with fat, onions and parsley; like lyonnaise potato, or served with tomato sauce is excellent, or it may be used as a sweet with fruit sirup. Hulled corn or lye hominy cooked like macaroni with cheese is also good. Fine hominy, white or yellow, flavored with cheese and made into croquettes may have a tomato sauce, or flavored with green peppers or pimientos may be served with cheese sauce.

Hasty pudding, hulled corn, corn pone, spoon bread, corn muffins, Boston brown bread, one or all may appear.

Dessert may be baked Indian pudding, or brown bread ice cream, or cornstarch blancmange with fruit sauce.

Popcorn may serve as croutons for soup, as a garnish for salads, or be made into corn balls with molasses or sugar.

Corn sirups can be used with popcorn, nuts, etc., if one wishes for a variety of candies.

The hall may be attractively and ingeniously decorated with corn—unique designs arranged from stalks and ears. strings of popcorn, etc. The school exercises may include recitations or songs of harvest application. On the tables there may be exhibits of cooked food from corn products, displays of varieties of ears and seed, and articles both utilitarian and decorative made from shucks and stalks. Prizes may be offered for the best varieties of corn bread and various dishes prepared from corn.

DON'T PLANT FRUIT TREES EARLY.

Fall planting of fruit trees should be delayed to late November or early December, advises the United States Department of Agriculture.

A pomologist of the department writes in reply to a New Jersey inquirer he would hesitate to advise planting in any section as early as October because of probable injury to the trees. In sections of the North where cold weather prohibits planting in November or December, he says, it is usually better to plant in the spring. Apple trees can be planted with safety in the fall farther north than peach trees and other less hardy kinds.

At the Missouri Experiment Station it recently has been shown that little or no root action takes place with fall-planted trees until the surface of the ground has begun to freeze, and the trees planted early in the fall may lose considerable vitality before they begin root action.

It is just as important to prevent waste of food by careless preparation, burning, or improper cooking as it is to avoid waste of food after it is cooked.

The lima-bean production of California, this year, is estimated by the United States Department of Agriculture to be 1,552,000 sacks of 80 pounds, or 2,069,000 bushels.

HANDLED HUMANELY.

"Twenty-Eight Hour Law" Causes Better Facilities for Feeding, Watering, and Unloading Live Stock.

As a result of the so-called "28-hour" law regulating the interstate transportation of live stock, many railroads have improved the yards and pens into which animals are unloaded for feed, water, and rest and have brought about conditions for the handling of cattle more humanely. The Bureau of Animal Industry of the United States Department of Agriculture says that since the enactment of the present law in 1906, there have been more than 7,100 violations of the statute reported for prosecution, and a total of $388,870 has been collected for penalties. The administrative officials, however, are more desirous of securing compliance with the provisions of the law than the imposing of penalties.

Purpose of Law.

The 28-hour law was enacted primarily for humane reasons. Its purpose is to reduce to a minimum the cruelty incident to the transportation of live stock, and to have the stock reach the market as nearly as possible in the same condition as when it leaves the farm. If animals are confined in cars for an excessive period without feed, water, or rest, or if when they are unloaded it is into a pen too small for them to rest or move about, or if the proper kind and amount of feed and water are not supplied, or if in the loading or unloading process the animals are brutally treated, they can not reach the market in good condition.

The statute requires that animals in interstate transportation shall be provided with proper feed and water each 28 hours. The owner by written request may authorize the railroads to extend this to a period of 36 hours. This privilege is so generally taken advantage of that the statute is really a 36-hour law instead of a 28-hour law from the standpoint of practical application.

Suggestions Adopted Cheerfully.

Suggestions offered by the officials of the Bureau of Animal Industry as to the construction of yards and pens to meet the requirements of the law have been adopted cheerfully and gladly by some carriers. In other cases it was necessary for the bureau to resort to prosecution. On some railroads there has been much improvement in general conditions, and violations now are comparatively few as compared with the past. Improvements have been especially noticeable in the Northwest, and no yard of consequence in that section now lacks a reasonable amount of shelter for the stock and paving for at least a part of the yard. On some roads pens have been provided with concrete floors and sufficient feeding space for all the animals to eat at one time, with ample watering troughs and sewer connections. Some pens in the Northwest are covered and entirely inclosed on three sides, but as a general rule for the entire country it is believed by the bureau that yards or pens partially covered on the side exposed to the winter winds will furnish sufficient protection to the animals. Roads where improvements have been made have been able to reduce materially their claims for injury to live stock, and by better train schedules have cut down the train crew cost.

While there has been much improvement, the bureau believes that if the carriers will cooperate with the Government more generally even better results will be obtained and fewer prosecutions will be required. The Bureau of Animal Industry of the United States Department of Agriculture is always glad to furnish the carriers and others with suggestions and information as to the best methods of handling live stock so as to comply with the terms of the law. Some of the larger roads already have sought such advice, and the department, in a number of cases, has sent an inspector to feeding points in company with the railroad officials and given suggestions as to the construction of yards and their equipment.

BEST USE FOR SKIM MILK.

Utilize It for Human Food as Far as Possible.

All skim milk should be used—none wasted. It should furnish the maximum of food to human beings and does this better when used direct, as cottage cheese, prepared buttermilk, or other by-products, than when fed to animals and converted into meat. Surplus skim milk may be used economically to feed hogs, yet 100 pounds of it, which will produce 15 pounds of cheese, produce only 4.8 pounds of dressed pork if fed with corn. Skim milk if made into cottage cheese furnishes nearly seven times as much protein and nearly as much energy as the dressed pork it would produce. Of course the most nourishment is obtained when skim milk is used direct, either for drinking or cooking. As far as possible, therefore, skim milk should be used for human food and only the excess fed to live stock.

Buttermilk and Whey.

Buttermilk is equal to skim milk for feeding hogs, while whey is half as valuable. Whey, being low in protein, is not well suited for young pigs and should be fed to older animals.

Ordinary grass pasture, or green rye, oats, sorghum, rape, clover, alfalfa, peas, or beans can take the place of skim milk after the little pigs get a start. Much green feed can be raised without greatly reducing the acreage of other crops.

Calves and pigs do well when some skim milk is fed, but they need it only for a short time and in limited quantities. Except when fed to very young animals, skim milk is fed most economically when supplemented with grain. For dairy calves skim milk may be substituted in part for whole milk on the tenth day. If the calves are vigorous they should receive a little grain and hay at two weeks of age, and it is safe to discontinue the skim milk five or six weeks later.

By substituting grain, green feed, buttermilk, and whey for skim milk in animal feeding, much skim milk may be released for use in cooking, for condensing, or for making cottage cheese.

CAN THE COCKERELS.

Can the cockerels when it no longer pays to feed them, is the advice the United States Department of Agriculture is giving to the boys and girls of the poultry clubs in the North and West. Canning saves feed and puts on the pantry shelves material for a chicken dinner when poultry is highest in price. This is the method taught to the club members:

Kill fowl, dress at once, cool; wash thoroughly, draw, then cut into convenient sections. Dip into cold water to insure cleanliness. Place in wire basket or cheesecloth and boil until meat can be removed from bones easily. Then remove from boiling liquid to separate the meat from bones. Take the meat off in as large sections as possible; pack hot meat into hot glass jars or enameled cans; fill jars with pot liquid after it has been concentrated one-half; add level teaspoonful of salt per quart of meat, for seasoning; put rubbers and caps of jars into position, not tight. Cap and tip tin cans. Sterilize for the length of time given below for the particular type of outfit used.

	Hours.
Water bath, homemade or commercial (quart jars).	3½
Water seal, 214 degrees	3
5 pounds steam pressure	2
10 to 15 pounds steam pressure	1

Remove jars, tighten covers; invert to cool and test joints.

CAUTION: Only the very best types of rubbers should be used.

Pennsylvania has imposed as a penalty for conviction for a second offense under the game law, imprisonment equal to one day for each dollar of the fine and denial of license to hunt for two years.

MEASURING HAYSTACKS.

Formulas for Determining Cubic Contents of Stacks and Ricks—Estimating Weight of Timothy.

As a result of investigations extending over several years, the United States Department of Agriculture has worked out formulas for measuring hay in ricks and stacks which, it is believed, farmers may apply easily and with accurate results. The formulas, which are published in Circular No. 67, Office of the Secretary, are accompanied by a table for estimating the weight of hay from the cubic contents.

The Measurement of Ricks.

It is a simpler matter to estimate the cubic contents of ricks of the ordinary shape than that of round stacks, since the former have approximately rectangular bases and straight ends. Instead of having to measure the height, always a more or less difficult matter, the farmer, when measuring a rick by the department's formula, need only ascertain the "over," the width, and the length, also noting the general shape against the sky line from the end.

The "over" is found by merely throwing a tape over the rick from side to side and measuring from the ground at the edge of the rick at one side to the ground at the opposite edge. The cubic contents of the rick is the product of the over, the length, the width, and a decimal fraction which depends on the shape of the rick when viewed from the end. This fraction always lies between .25 for low shapes that approach a triangle and .37 for shapes having high, full sides and blunt points. To make the rick formula easily remembered, the specialists who have worked it out call it the "FOWL" formula, F standing for the fraction, O for the over, W for the width, and L for the length. In making his estimates, the farmer should compare the end outline of his rick with the figures showing shape given below, using the fraction accompanying the figure most nearly approaching the shape of the end of his rick.

The following is an example of the use of this formula: A hay rick is 10 feet wide, 20 feet long, and the over is 30 feet. Its end shape is seen by examination to be that of type No. 6, figure 1. How many cubic feet of hay are in the rick?

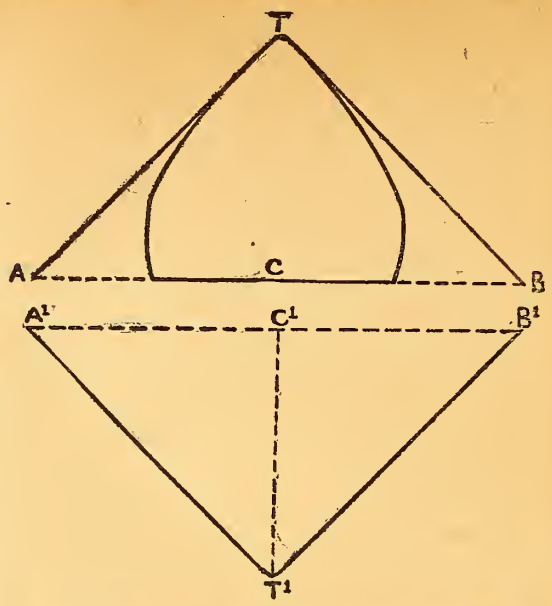

FIG. 2.—Diagram showing a method of measuring the height of stacks or ricks of hay.

The fraction for type No. 6 is seen to be .34. From the formula it is known that the volume in cubic feet equals FOWL, or Fraction times Over times Width times Length. Therefore, the volume equals .34, multiplied by 30, multiplied by 10, multiplied by 20. This equals 2,040 cubic feet.

The Measurement of Round Stacks.

The first step in estimating the volume of a round stack is to find the vertical height of the pile. This usually can not be done directly unless the stack is built around a pole which has been measured. The measurement, however, may be accomplished in the following way: Mark two points, A and B, on the ground on opposite sides of the stack at as nearly equal distances from its center as possible. Throw a cord over the stack at its topmost point, T, stretching it gently from the point A to the point B, and mark it to show the length from A to B. Remove the cord and place it on the ground in the position A^1, T^1, B^1, the points A^1 and B^1 being exactly the same distance apart as A and B. At T^1 the cord should be made to assume the shape of that portion of the top of the stack with which the cord was in contact when it was stretched over the top of the stack. The distance C^1 T^1 will then be the height of the stack. The height of a rick can, of course, be obtained in the same way.

The fundamental formula for determining the number of cubic feet in a round stack are necessarily somewhat complex. However, since the publication of the circular itself, its authors have developed from this formula a simple working rule that suffices for all practical purposes. This rule, hitherto unpublished, is as follows:

Multiply the circumference of the stack at the ground by height of the shoulder or

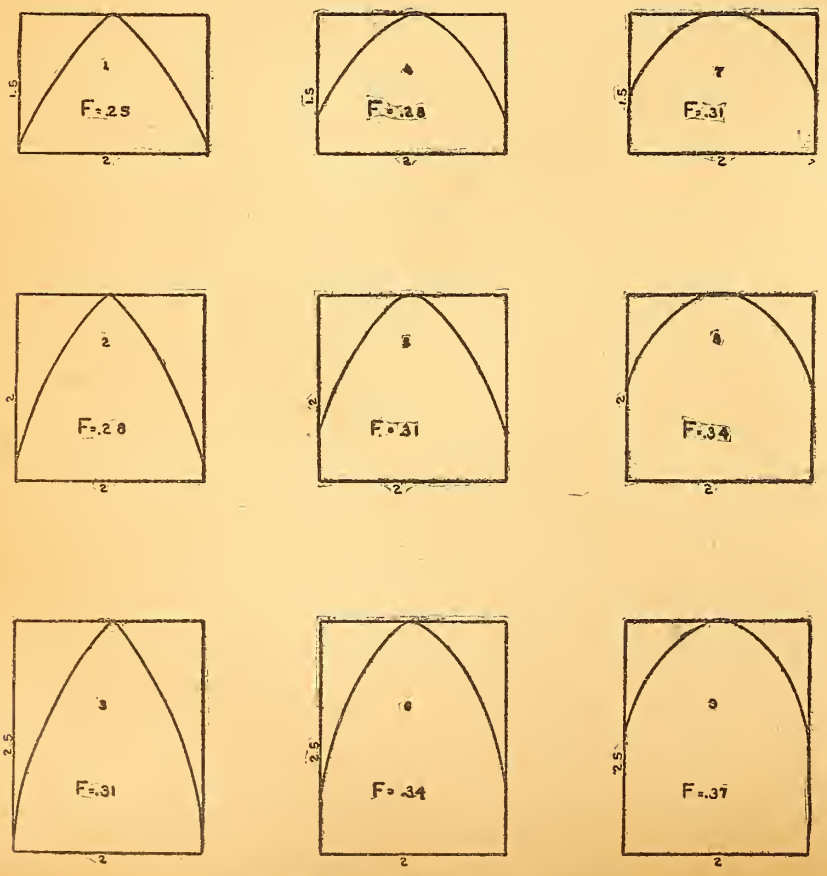

FIG. 1.—Cross sections of hayricks of different shapes.

"bulge," Multiply the circumference at the shoulder by half the height above the shoulder. Add these two products together and multiply the sum by one-twelfth of the circumference at the shoulder. The result will be the number of cubic feet in the stack.

The following table indicates the number of cubic feet of hay per ton as ascertained by the department's specialists from numerous experiments.

Cubic feet of hay in a ton.

[Averages from 92 stacks measured and weighed.]

Age of stacks in days.	Number of stacks measured and weighed.	Average cubic feet per ton.
Under 30	55	589.6
30 to 60	30	581.5
74 to 155	7	514.9

It will be noted that shrinkage makes a very marked difference in the number of cubic feet required to make a ton.

These figures apply only to clear timothy or a mixture of timothy and clover. No definite measurements of other kinds of hay have been made.

SHOULD SAVE HAY.

Farmers Urged to Exercise Economy in the Use of All Forage Crops.

Rigid economy in the use of all forage crops is urged upon farmers in northwestern States by the United States Department of Agriculture. Reports received by the department from some sections of Montana and adjoining States indicate the need of conservation of hay crops.

Thousands of tons of hay may be saved by more careful methods of storing and stacking, according to the specialists. Through the Northwest, where practically all the hay is stacked in the open, a very large per cent of it is spoiled and becomes worthless. If baled in the fall and early winter after the rush of other farm work is over, and when the hay is dry, it can be better preserved and more easily shipped to localities where there may be a shortage.

Don't Burn Straw.

Don't burn any straw stacks, urge the department specialists. Especially should oat straw be saved, it is said. Well-preserved oat straw makes an excellent roughage for stock. Any straw is worth preserving in localities where the hay crop may be short or in territories adjacent to sections where there is likely to be a shortage of forage. The saving of straw in grain-producing sections, both for seed and for fertilizer, can not be urged too strongly, specialists declare.

FEED GRAIN SORGHUMS.

Excellent Opportunity This Year to Utilize Large Crop in Fattening Cattle.

Conditions indicate a production of sorghum grain above the normal in the Southwest this season due to increased acreage and favorable conditions late in the season. At the same time pastures are in poor condition in some sections and the corn crop short in others. These three facts should cause a large increase in the use of sorghum grain for fattening cattle in that region.

The specialists point out that the feeding of the grain sorghums in fattening cattle and the sale of the finished animals constitutes the most remunerative way of marketing both products. Such a practice eliminates the costly hauling and shipping of the grain. In the form of meat, the grain also sells for a better price than usually can be got for it as grain. Similarly the owner of cattle fattened on grain sorghums gets the profit which, under the system of selling his cattle as "feeders," goes to the farmers of the corn belt conducting feeding operations.

Feeding Value of Sorghum Grain.

Experiments of the United States Department of Agriculture show that sorghum grain has 90 per cent of the feeding value of corn and is therefore more economical than corn when it sells for less than 90 per cent of the price of corn. The best system for fattening cattle in the sorghum grain growing sections, according to the specialists, includes the feeding of silage and a concentrate with the grain. Silos have been increasing in number in the Southwest during the last few years, it is pointed out, and the region is especially favorably located in so far as an available supply of cottonseed meal—one of the best concentrates—is concerned.

HIGH-GRADE COTTAGE CHEESE.

Pasteurization Makes It Possible to Control Flavor and Texture.

The pasteurization of skim milk as the first step in the manufacture of high-quality cottage cheese by creameries and milk plants is recommended in a new bulletin of the United States Department of Agriculture. It is stated that by pasteurizing skim milk as it comes from the separator and beginning the manufacturing process as soon as possible, the cheesemaker can better control flavor and texture. "No trouble need be experienced," says the bulletin, "in making a high quality of cottage cheese, possessing both the characteristic flavor and body, from properly pasteurized skim milk of good quality."

The benefits to be derived from proper pasteurization are so great as to make it highly advisable to adopt that system. Little additional work is required, provided suitable equipment is available, and but little is added to the cost of making.

Advantages of Pasteurization.

The most important advantago derived from pasteurization, as pointed out in the bulletin, is that a sanitary, safe, food product free from disease-producing germs is insured. Pasteurization also allows a more perfect control of souring through the use of pure-culture starters, thus insuring the formation of an acid curd, giving the characteristic sour-milk flavor so much desired.

The bulletin mentioned, No. 576, "The Manufacture of Cottage Cheese in Creameries and Milk Plants," gives complete directions for the manufacture of cottage cheese from skim milk, from a mixture of skim milk and buttermilk, and from buttermilk alone.

HOG SALES DAYS.

A chain of hog sales days has been organized for all counties of southeastern Alabama, which, with the remainder of the southern section of that State, in six years have become a hog-producing area of distinction. The hog sales day plan was originated in Dale County, whose farmers realized from 1½ to 2 cents more than farmers in other sections of southern Alabama.

At Ozark, October 3, No. 1 hogs sold for $17.60 a hundred and No. 2 and No. 3 hogs 1 and 2 cents less, respectively. Agents of the States Relations Service of the United States Department of Agriculture worked to develop hog raising in this section and are in charge of the sales days. One of them reports there is no particular reason why southern Alabama should lead other sections in this industry. He commends the sales day plan to other sections of the South.

Advisability of development of hog raising in southern Alabama was urged when ravages of the boll weevil directed attention to the necessity for diversification of farm products in cotton States. Geneva County shipped 373 cars last year, and this number was followed closely by other counties of the section. Washington County, in which only 2½ per cent of the land is in cultivation, shipped six or seven cars.

It is necessary to select the proper kind of food for your particular circumstances; it is also important to prepare or serve only so much of each kind as will be eaten.

FOR POTTING PLANTS.

Suggestions for the Amateur Gardener—Equipment and Essentials Necessary to Success.

The following suggestions for potting plants, prepared by the United States Department of Agriculture for the use of high-school teachers, will be helpful to any amateur gardener getting plants ready to bring into the house:

For potting plants the following equipment and material are needed: A workbench, suitable soil, a coarse soil sieve, a sprinkling can, a shovel, material for drainage, pots, and plants. The soil should be rich in plant food and should contain sufficient sand and organic matter to prevent any tendency for it to harden or bake upon drying. When moist, it should fall apart readily when squeezed in the hand. Equal parts of a good loam, clean sand, and well-rotted manure or compost, all worked through a coarse sieve, will prove suitable for ordinary work.

Essentials of Good Potting.

The following may be considered essentials of good potting: (*a*) The soil should be moderately moist throughout; (*b*) the pots should be clean and soaked in water before using; (*c*) the pots should be of a size suited to the plant; (*d*) pots 4 inches in diameter and larger should be filled one-fourth full of pieces of broken pots to provide for drainage; (*e*) the plants should be placed at the proper depth and in the center of the pot; (*f*) the soil should be filled about the roots carefully by hand and then made compact by pressure with the thumbs; (*g*) the plants should be watered thoroughly after potting and then placed away from direct light for a day or two until they are established. If the soil has been properly compacted about the roots, it will be possible to remove the pot by turning it upside down and giving the edge a slight jar, the soil remaining compact. As the plants grow so that their roots fill the pots they should be shifted to larger pots if they are intended for inside use. Practice in shifting may be given along with potting if there are pot-bound plants on hand.

High-school teachers of agriculture who have not received the document dealing with home floriculture may address the States Relations Service of this department.

SPRAYING IS ONLY CERTAIN RELIEF.

Timely spraying is the only relief from the codling moth, according to reports from apple orchards in Kansas, Connecticut, New York, and other States to the Bureau of Entomology of the United States Department of Agriculture, cooperating with State entomologists. In Kansas a careful investigation of 18 large orchards indicated an average loss from the codling moth of about 30 per cent of the apple crop. This high percentage of injury is attributed to failure of timely application of sprays. The loss to small orchards where ineffective spraying was done has been particularly heavy in Connecticut. Reports from western New York say no way of avoiding the codling moth injury has been found except by systematic and thorough spraying year after year.

OKLAHOMA SEED FUND.

Tulsa Clearing House and Santa Fe Railway Furnish Assistance to Farmers.

A seed wheat fund has been provided in Oklahoma by the Tulsa Clearing House and the Santa Fe Railway. This fund will be used, through local banks, for the financial assistance that may be necessary to farmers in the drought sections who must supply themselves with seed wheat.

In drought sections of Oklahoma it became necessary for farmers to be able to borrow money to buy seed wheat, and for the local banks to have more funds than usual available for that purpose. The Tulsa Clearing House agreed to place in these local banks such sums as will be needed, up to a total of $500,000. The Santa Fe Railroad has deposited in banks along its line in Kansas, Oklahoma, and Texas approximately $500,000 for the same purpose. This money is loaned to the local bank at a rate of 4 per cent interest.

The question of the farmer's security to the bank and the rate of interest charged him are local matters which are receiving attention. Quite a number of farmers have given a share of the prospective crop as security for the loan.

WORTHLESS AS INSECTICIDE.

Makers of "Fertilizing Scale Treatment" Fined $100 in Federal Court.

Claims that the insertion of a white capsule and a brown capsule, containing potassium cyanide and other substances, in the bark of fruit trees will kill scale on the trees, led to a fine of $100 in the Federal courts upon the makers of the "Fertilizing Scale Treatment," who pleaded guilty to the charge of misbranding and adulteration. This fine, reported in a recently published Notice of Judgment was imposed in the case of the United States *v.* Albert D. Kleckner, Maybelle B. Kleckner, and Emma Kleckner (Fertilizing Scale Co.), Allentown, Pa., brought under the insecticide act of 1910 at the instance of the United States Department of Agriculture in the Eastern District Court, Pennsylvania.

The department tested these capsules for several years on fruit trees to determine whether their use had any deterrent effect on scale and whether the material also actually fertilized the trees as asserted by the makers. The department found that the capsules did not kill scale and did not fertilize the trees, but on the contrary, injured the tree, causing large cankers through which rot fungi may enter and finally destroy the tree. The department's tests were further supplemented and confirmed by the scientists of the department who visited many orchards in Maryland and Pennsylvania and studied the trees which had been treated by the agents of the company.

The "Fertilizing Scale Treatment" has been advertised and sold also as a remedy for other insects and for various tree diseases. Department specialists fail to find any reason to believe that the potassium cyanide and other substances inserted in trees in capsules have any value whatever in controlling plant pests.

EAT PLENTY OF POTATOES.

"Now that the country's bumper potato crop is flowing into markets in an ever-increasing stream the wise housewife will take advantage of this cheap source of starchy food and will give the tubers a very important place on the dinner table," say home-economics specialists of the United States Department of Agriculture.

It is well known that potatoes are a nutritious and healthful food, of which one may eat freely without ill effects. As a matter of fact, say the department specialists, there is something more which can be said for the potato, for the liberal consumption of them helps to supply the body with alkaline salts which it needs for normal health. Eat more potatoes, for breakfast, lunch, dinner or supper, therefore, while they are abundant, say the specialists, to the advantage of both your health and your pocketbook.

MANY GRAIN WEEVILS.

Anticipating an unusual prevalence of the more common grain weevils in stored grains this winter, the Bureau of Entomology of the United States Department of Agriculture is exercising especial efforts to standardize fumigants for these pests and determine methods of application on a large scale, to prevent their damage as much as possible. Reports to the bureau are to the effect that persons who are storing grain may expect more weevils than usual this winter.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., NOVEMBER 21, 1917. No. 16

HOG CHOLERA CONTROL.

Organization of Hog Raisers, Sanitary Precautions, and Serum Treatment Materially Reduces Losses.

Although hog cholera can not be completely eradicated from the United States under present conditions, losses from the disease can be materially reduced by education and organization of hog raisers in the application of proper sanitary measures and the proper treatment of hogs with anti-hog-cholera serum. This has been shown by the results obtained by the Bureau of Animal Industry of the United States Department of Agriculture in experimental work in hog-cholera control carried on in a number of counties during the past four years. The work and its results are described in Department Bulletin 584, "The Control of Hog Cholera," recently published by the department.

Hog Raising Thrives Under Control.

One of the important results, according to the bulletin, is the fact that the work while effective in reducing the disease, was not repressive while in progress on the hog-raising industry. On the contrary the industry thrived in the experimental counties to a greater degree than in adjacent counties in which no control work was under way.

Actual statistics were taken in the experimental counties and careful estimates were made in the adjacent counties. These show that in one group of three counties where the control work has been under way four years the percentage of loss from hog cholera has remained constantly from one-fourth to two-fifths the percentage of loss in the 15 surrounding counties. In another group of experimental counties the average percentage of loss as compared with that in 18 surrounding counties was reduced from approximately nine-tenths in 1913 to less than one-third in 1914 and to about one-sixteenth in 1915.

Community Needs in Combating Cholera.

Specialists who have supervised the control work of the department reach the conclusion that while the eradication of hog cholera can not be expected for a considerable time, the material reduction by the use of serum of the enormous losses which annually are caused by the disease is entirely practicable. The essentials for success in combating the disease, they point out, are interest on the part of hog raisers and knowledge of the disease; organization which will facilitate exchange of information as to outbreaks, and secure assistance; serum at reasonable prices and easy of access; and the available service in the community of persons skilled in administering serum.

WHAT IS NEEDED FOR CONTROL OF HOG CHOLERA.

A farming community that knows hog cholera, the ways in which it is spread, and the best methods of combating it.

A community so organized that every farmer will be ready to help his neighbors by informing them and the proper State officials of the existence of cholera wherever this may come to his notice, and where every farmer knows where to get good serum quickly.

Readily available serum at reasonable prices.

A sufficient number of skilled men to administer the serum.

LIME SHOULD BE ORDERED NOW.

Orders should be placed at this time by farmers who intend to use lime on their land in order to increase next season's crop. If orders are placed at the present time the manufacturers will be able, they say, to supply the agricultural needs. By being given orders now they will have six or eight months in which to prepare the necessary supply, whereas they will be swamped if the orders all come next spring.

Lime applied in the fall or winter is as effective as when applied in the spring. Fall and winter application of lime is urged as good farm practice and also as an emergency war measure. By following this suggestion farmers will be improving their land so as to turn out the largest possible crop yield.

DRIED POTATOES MAKE GOOD PORK.

Dried pressed potato, used in combination with feeds rich in protein, is "very efficient in producing rapid gains and a high finish when fed to swine," United States Department of Agriculture investigators have found in a search for a suitable way to dispose of cull or surplus potatoes.

An experiment on which this conclusion is based is described in Bulletin 596, just issued by the department.

ALL RECORDS BROKEN.

65,520 Square Miles to Be Freed of Federal Quarantine for Cattle Ticks on December 1.

With a broad wedge driven through the cattle-tick army right to the Gulf and with a new area of 65,520 square miles in nine States cleaned from tick to be freed from Federal quarantine, December 1 will be a red-letter day for the cattle and dairying industry of the South.

This release breaks all records in tick eradication. The total territory released during the year 1917 through the cooperative efforts of the States and the United States Department of Agriculture amounts to 70,754 square miles, or 20,000 more than were released in 1912, until now the record year.

Territory Released.

The order signed by Secretary Houston provides that the following counties shall be released December 1:

Alabama.—Baldwin, Barbour, Chambers, Choctaw, Clarke, Coosa, Dekalb, Houston, Russell, Talladega, and parts of Cherokee and Mobile. Total released in State, 9,859 square miles.

Arkansas.—Columbia, Crawford, Lonoke, Monroe, Nevada, Ouachita, Pope, Prairie, Union, White, Yell, the remainder of Baxter, Independence, Izard, Jackson, Lee, Phillips, St. Francis, Sebastian, and parts of Conway, Desha, Faulkner, Jefferson, Pulaski, and Van Buren. Total released in State, 13,305 square miles.

Florida.—Monroe. Total released in State, 1,100 square miles.

Georgia.—Bibb, Brooks, Burke, Butts, Coweta, Dougherty, Douglas, Gwinnett, Jefferson, McDuffie, Muscogee, Spalding, Taliaferro, and Troup. Total released in State, 5,559 square miles.

Louisiana.—Caddo, Concordia, East Feliciana, Franklin, Jefferson, Davis, Lincoln, Pointe Coupee, Washington, West Feliciana, and parts of Orleans and Ouachita. Total released in State, 5,883 square miles.

Mississippi.—Calhoun, Choctaw, Covington, Franklin, George, Greene, Hancock, Harrison, Itawamba, Jackson, Jefferson Davis, Kemper, Lamar, Lawrence, Lincoln, Marion, Montgomery, Pearl River, Perry, Pontotoc, Prentiss, Simpson, Smith, Stone, Tishomingo, Wayne, Webster, and the re-

mainder of Jones. Total released in State, 13,660 square miles.

North Carolina.—The remainder of Northampton, and parts of Columbus and Pitt. Total released in State, 1,079 square miles.

Oklahoma.—Okfuskee, the remainder of Delaware and parts of Adair, Cherokee, McClain, Mayes, Okmulgee, and Osage. Total released in State, 3,240 square miles.

Texas.—Coke, Concho, Cooke, Dallas, Irion, Montague, Runnels, Stephens, Sutton, Taylor, Young, the remainder of Shackelford and Throckmorton, and parts of Crockett, Jack, and Tom Green. Total released in State, 11,835.

The quarantined area after December 1 will include 349,253 square miles, compared to 728,565 square miles quarantined July 1, 1906. The quarantined territory will be divided as follows: Alabama, 19,918; Arkansas, 20,952; Florida, 49,961; Georgia, 35,324; Louisiana, 37,824; North Carolina, 9,674; Oklahoma, 22,377; South Carolina, 8,619; Texas, 142,918; Virginia, 1,686.

Tick-Free Day.

Throughout Mississippi, and in 90 counties and parts of counties in eight other Southern States, local officials and citizens are arranging local celebrations to mark the dipping out of this costly parasite of southern agriculture.

The governor of Mississippi, by special proclamation has declared December 1, when by the release of 28 counties his entire State will be freed from quarantine, a day of special rejoicing. At the statehouse he will receive the congratulations of the United States Department of Agriculture for the State's effective cooperation in dipping out the tick and driving a wedge of free territory through to the Gulf.

Congratulatory messages are to be sent also to the governors of the other States and be transmitted to each county celebrating its entry into the free cattle territory of the Nation.

What Tick Eradication Means to Freed Territories.

Before the ticks were dipped out these parasites annually killed many cattle with tick fever, steadily sucked out of cattle vast quantities of blood which should have gone to make meat or milk; wasted, therefore, much of the grain and forage fed to cattle; and, finally, prevented the introduction of nonimmune breeding stock for the improvement of local beef and dairy herds. The presence of the tick barred shipments of local cattle from the open competition of the free pens at the packing centers and forced their owners to sell them at a disadvantage from quarantine pens for immediate slaughter only.

Tick Now Dipped Out of 379,312 Square Miles.

The South since 1906 has succeeded in releasing from quarantine 379,312 square miles, or over 51 per cent of the originally quarantined area. Mississippi is the fifth State to be declared entirely free, the States of California, Kentucky, Missouri, and Tennessee previously having been released. Special credit, however, is due to Mississippi, because much of the area freed was heavily infested with ticks. There remain in the entire South 349,250 square miles yet infested and to be cleaned and released from Federal quarantine. The example of Mississippi, however, it is believed, will serve as a strong incentive to neighboring States to widen the wedge to the Gulf until the tick is eradicated from the entire South.

To Break New Record in 1918.

That this year's record will be exceeded in 1918 and that the tick will be banished from the Nation by 1921 are strong probabilities. The States of Arkansas and Louisiana, following the example of Mississippi, have passed State-wide laws making the eradication of the tick compulsory in every infested county. The legislature of the State of Texas has recognized the importance of tick eradication, although its laws do not make eradication compulsory in its various counties for some time to come. Indications from all the tick-infested States are that in many sections the people have grown thoroughly tired of the toll the tick is taking and patriotically are building dipping vats and making preparations to free their cattle during the coming year.

TICK-FREE DAY.

Why the South Will Celebrate December 1, 1917.

A wide wedge has been driven through the lines of the deadly cattle fever tick to the Gulf, and this bloodletting parasite is on the run.

Federal quarantine will be lifted on December 1 from 65,520 square miles, dipped free this year.

The entire State of Mississippi is tick free and will be released from quarantine.

The tick has been dipped out of 90 counties and parts of counties in other States.

A total area of 379,312 square miles has been cleared of ticks since 1906 and given the opportunity to develop the great cattle-raising and dairying industry to which its climate and soil entitle it.

Tick fever no longer in these sections will kill thousands of cattle annually. Spring losses will be importantly reduced.

Vast quantities of grain, forage, and pasturage formerly wasted in supplying blood to useless ticks now are going into milk and meat.

Good breeding animals, no longer in danger from tick fever, are being brought in to build up fine beef and dairy herds.

Cattle are becoming part of farming systems to the profit of the owners and the maintenance of soil fertility.

Cattle owners are free to ship their stock without restriction anywhere to be sold as beef or as stockers or feeders in open competition on their merits.

Their shipments no longer are discriminated against in price because they have to be sold from detention pens for immediate slaughter only.

The released regions by dipping out the tick have made themselves part of the world market for cattle.

The tick's knell is sounded. Not much longer will it be allowed to waste meat and milk needed to feed our armed forces.

Only 349,253 square miles remain to be freed from ticks in the South, but every live tick means lost meat and milk during this emergency.

But Arkansas and Louisiana, following the lead of Mississippi, have passed State laws which shortly will make tick eradication compulsory in every one of their infested counties. The Legislature of Texas has recognized the importance of tick eradication, though its law does not become effective in the counties for some time to come.

The people in many counties throughout the infested area patriotically are building dipping vats and preparing to dip out the tick in 1918. The year 1921 is fixed for the complete eradication of the tick from the South.

Join with the free areas in celebrating on December 1.

Get your vats ready and see to it, as an act of patriotism, that your county can have its own celebration next year.

DIP THAT TICK IN 1918.

NORTHERN STATES TO GAIN.

An order signed by Secretary of Agriculture D. F. Houston, lifting on December 1, from 65,520 square miles in Southern States the Federal quarantine against movement of southern cattle is of great importance to cattle raisers and dealers of Northern States as well as those of the South.

In regions infested by the cattle tick it has not been held safe to import better stock for the improvement of southern herds, because cattle freshly brought in from regions where the tick is not prevalent are especially prone to sicken and die from the fever germs carried by the blood-sucking parasite. The Federal quarantine against the cattle tick, on the other hand, has prevented the shipment of cattle from infested sections for use as stockers and feeders in free territory, and permits their shipment into free territory only under quarantine restrictions and for immediate slaughter.

TICK ERADICATION PAID.

In the 16 Alabama counties which eradicated cattle ticks last year the average cost to the county was $8,052.34. The cattle in these counties were increased in value thereby $10 per head. There was an average of 19,694 cattle in these counties. Therefore the average increased value was $196,940 to each county. An average expenditure of $8,052.30 paid back $196,940. For every dollar expended by the county $24 was realized.

Hot weather is favorable to hog cholera; watch your hogs closely during the summer months.

FEEDING KITCHEN WASTE

Selection and Preparation Are Necessary to Give Best Results with Poultry.

When kitchen and table waste is to be fed to poultry it should be selected and prepared with a view to getting its full food value and at the same time making it entirely acceptable to the birds.

Not all of the refuse and scraps from the kitchen are suitable for poultry food. Some things, as vegetable peelings, may be used when they constitute only a small part of the scraps, but when they are in excessive quantities it is better to dispose of them separately. The same is true of coffee grounds and tea leaves.

Cut Up Fat Meat.

Fat meat in large pieces should not be put with scraps for poultry because a hen can swallow a much larger piece of fat than is good for her. By cutting waste fat meat in pieces no larger than one would cut for himself at the table, and by making sure that the fat does not exceed 10 per cent of the scraps fed at one time, the dangers in feeding fat are avoided.

The best way to save kitchen waste for poultry is to keep a 1-gallon jar, of glazed or galvanized ware, with a cover in a convenient place, putting into this scraps of bread, cake, and meat from the table, remnants of serving of vegetables, cereals, pies, puddings, etc., and whatever waste from the preparation of meals is suitable to combine with these things in a mash.

Mix in Ground Feed.

Once a day the contents of the jar should be turned into a pail of appropriate size and as much ground feedstuff mixed with them as can be stirred in with a strong iron spoon or a wooden stirring stick. The amount and kinds of ground feeds to be used will depend upon the quantity of water with the scraps and whether any particular article predominates.

For thickening a mixture of scraps of ordinary variety a mixed meal of equal parts by weight of corn meal, bran, and middlings is good. If there is an unusual proportion of very rich food in the scraps, it may be desirable to use bran alone for thickening. The more meal that can be stirred in and still have all the meal moist the better. Mixing can be done much more easily and thoroughly by mixing in a pail having a capacity about three times the amount of the scraps mixed at one time.

If the mash with scraps makes more than one meal for the flock, the pail should be kept covered until the next feeding. As a rule, it is not advisable to feed such a mash oftener than twice a day, but if mixed quite dry it may be fed three times. The occasion for this will exist only where scraps are so abundant that when thickened with meal they may be made the exclusive diet. This is not as good a ration as one containing some hard grain, but it may be used a long time without any bad results.

POTASH FROM CEMENT DUST.

Valuable Fertilizing Material Can Be Produced From Cement Plants of the Country.

That between 71,000 and 75,000 tons of available recoverable potash, about one-third of the quantity normally consumed in the United States, exists in the dust passing through or retained in the flues of the cement manufacturing plants of the country is indicated by analyses made by the Bureau of Soils of the United States Department of Agriculture, according to a recent publication, Department Bulletin 572. By increasing the percentage of potash volatilized, by the addition of substances which will not affect the quality of the cement, the recoverable potash in flue dust can be increased to more than 100,000 tons annually, or nearly one-half of the normal consumption of potash in the United States, according to the bulletin.

Potash from Flue Dust.

Numerous plants have installed electrical precipitation equipment to recover the flue dust, and are finding the installations good investments, the bulletin declares. Some plants are recovering 95 per cent of the potash present in the raw materials fed into the furnaces.

The dust recovered in the flue stacks, connecting kilns, and precipitation apparatus is about 4.5 per cent potash, while that recovered from the precipitation apparatus itself is about 11 per cent potash. The dust may be used as a source of cement material, may be disposed of as collected for use as a fertilizer or in fertilizer manufacturing, or may be leached to prepare concentrated potash salts.

INCREASED WHEAT YIELDS.

Improved Methods and Seed Selection Used With Much Success.

Reports of the United States Department of Agriculture and State agricultural colleges cooperating in improved methods show that in 1916 there was an increase of 38,364 bushels of wheat on 4,800 acres where these methods were followed. This increased yield will make at least two and one-fourth million one-pound loaves of bread.

In six States where 135 wheat growers conducted demonstrations by using selected varieties of seed, the yield on 3,343 acres was increased 18,854 bushels. The breeding and selection of special varieties of wheat adapted to particular regions or localities is one of the most important items in the experiment station programs for producing increased yields. When these varieties have been determined it simply remains for the farmers to secure the adopted variety for seeding. The intelligent use of commercial fertilizer, treating seed grain for smut, the fallow system in some dry-land areas of the West, and the growing of peas in the place of summer fallowing in other western sections were also included in the successful program used by the county agents in these States last year. Reports from eastern Washington show very successful results in growing peas after wheat. The wheat crops after peas were increased in yield, and the pea crop itself was valuable.

If these improved methods had been applied throughout these 14 States generally, instead of upon a limited number of farms where tests were made, and the same rate of increase had held, the increased wheat yield upon the same acreage would have produced a considerably enlarged bread supply.

AIDS IN TEACHING AGRICULTURE.

"The Propagation and Pruning of Plants" is the title of a document recently issued by the States Relations Service, United States Department of Agriculture, with the object of helping teachers in the secondary schools to present the subjects in an interesting and effective way to their pupils. The document, which is prepared by Mr. H. P. Barrows, specialist in agricultural education, outlines class-room instruction in both subjects, and suggests practicums, projects and discussions, and gives a complete outline of a demonstration project in this connection, for the renovation of an old orchard. The section on pruning covers principles, the pruning of fruit trees, small fruits, ornamentals, and shade trees, and gives some attention to practical tree surgery. It suggests a number of Farmers' Bulletins, which the teacher will find helpful in presenting the subjects.

States Relations Service Document 58, "Types and Breeds of Farm Animals," designed to aid high-school teachers in dealing with animal husbandry, contains outlines for class-room instruction relating to cattle, horses, mules, swine, sheep, goats, and poultry.

Join with your neighbors in buying spraying materials, and thus get the benefit of wholesale prices.

STORE FARM WATER.

Reservoirs Properly Built Conserve the Supply for Irrigation and for Live Stock.

If the water which goes to waste on the farm in times of plenty were conserved for times of drought, gardens and fields might be saved from failure and live stock from a sacrifice market. Farm reservoirs store water of streams, pumped water, or run-off water until it is needed. A widely increased interest in pump irrigation has created a demand for storage facilities to retain the water lifted by the pump overnight and to provide a large irrigation stream for the following day. That farmers who contemplate building reservoirs may be properly guided in the work, a new publication, Farmers' Bulletin 828, "Farm Reservoirs," discussing the various types and details of construction, recently has been published by the United States Department of Agriculture.

Use of Reservoir Should Determine Type.

The use to which the farm reservoir is to be put should determine the type of construction, according to the writer of the bulletin. If it is intended to use any part of the stored water for drinking or even for culinary purposes the entire supply must be kept free from pollution, while if the supply is intended for irrigation only, the purity of the water need not be considered. If a reservoir is intended for both irrigation and the watering of farm animals, care should be taken in planning and building so that damage can not be done by the trampling of stock. Problems of building—how to locate a reservoir, when a concrete lining is advisable, how to "puddle" an unlined reservoir, how to build inlets, outlets, wasteways, embankments, and how to protect the reservoir—all are discussed and illustrated in the bulletin.

Sources of Water Supplies.

The most common source of supply for farm reservoirs is the well, from which water is raised to the necessary height by a windmill, gas engine, or electric motor. The flow from springs, lakes, flowing wells, and small creeks forms another source of supply. Also, in that borderland between humidity and aridity known as the Great Plains area, and throughout the arid region, the so-called "dry creeks" carry considerable water at times. Part of this run-off, the specialist declares, often can be led into a reservoir and stored for watering stock and irrigating land. In the Atlantic and East Central States and, in fact, throughout the entire humid region, water to fill farm reservoirs generally can be obtained readily at low cost from springs, lakes, streams, and shallow wells. Bogs or muck beds, which abound particularly in the Atlantic coast States, often can be converted at small cost from mosquito-breeding grounds into serviceable reservoirs.

TOMATO DECAY.

Growers Advised to Test Soil for Presence of Disease, and Stake Tomatoes Planted on Infected Fields.

A rot of green and ripe tomatoes was found to be quite prevalent in tomato fields of southern Florida last season, and probably exists in other Gulf States. Dark-brown spots appeared on the fruit, often showing concentric rings or zones, and rather firm to the touch. A central point—the size of a pinhead—is sometimes present showing where infection took place. In more advanced stages the fruit cracks and the broken surface is covered with a thick, brown, cottony mat of the fungus which is the cause of the disease.

Only fruit touching the ground or close enough to become spattered with soil particles by rain water becomes infected.

Some of the growers have asked the question, "How can one determine before setting out a field whether the soil is infected?" Tests have been made in order to answer this question, and as a result the following is recommended by the United States Department of Agriculture.

Test Soil for Infection.

Take samples of soil from different parts of the field to be tested and fill several pots or small flats with it. These are planted with tomato seed, kept at growing temperatures and watered when necessary. Two or three weeks after planting, the seedlings are pulled up and examined at the point where the seedling stem emerges from the ground or a little below that point. Where the soil is infected, the seedlings at the above mentioned points will show a distinct brown lesion or canker. In severe cases a complete girdling of the stem takes place and dries up at that point, causing it to fall over in the pot or flat. Seedlings grown in healthy soil will not exhibit these symptoms.

Where soil is found to be badly infected, it is advised that the plants be staked, so as to prevent the fruit from lying on or near the surface of the soil.

THE CASE AGAINST RATS AND MICE.

Rats and mice are among the worst animal pests in the world, according to biologists of the United States Department of Agriculture.

From their home among filth they visit dwellings and storerooms to pollute and destroy human food.

The rat carries bubonic plague and many other diseases fatal to man and has no doubt been responsible for more untimely deaths among human beings than all wars of history.

In the United States rats and mice destroy each year in homes, in factories, stores, and warehouses, in cars and on ships, crops, poultry, and other property valued at more than $200,000,000—an amount equivalent to the gross earnings of an army of 200,000 men.

Grain eaten and wasted by rats and mice on many farms would pay all the farmers' taxes.

Rats and mice breed from 6 to 10 times a year, producing their destructive kind at an alarming rate.

They are parasites without a single redeeming characteristic.

CATTLE RECEIPTS INCREASE.

Stock-Yard Reports, However, Show Decreased Receipts of Hogs and Sheep.

Shipments of cattle to markets have increased this year, by comparison with the same period of 1916, according to stock-yard receipts reported to the Bureau of Markets, United States Department of Agriculture. During the same period, market receipts of both hogs and sheep have decreased as compared with last year. In September, 1917, 2,242,125 cattle were received at 47 of the principal stock yards in the United States. For the same month in 1916, 1,737,619 cattle were reported. During the first eight months of 1917, 12,501,641 cattle were received in these stock yards and for the first eight months of 1916, 9,839,170 were received

In September of this year 1,496,190 hogs came to these stock yards, while 2,356,020 hogs were received in September, 1916. Total hog receipts for the first eight months of 1917 were 24,278,476, while 27,043,482 were recorded the first eight months last year. There were 2,292,295 sheep shipped to centralized markets in September, 1917, compared with 2,534,337 for September, 1916. This year 9,426,637 sheep came to these stock yards during the first eight months; and 10,406,783 were received during the first eight months of 1916.

The stocker and feeder movement of both cattle and sheep from markets has been heavier this year than last. In September, 1917, 503,160 stocker and feeder cattle moved from 31 stock-yard centers, as compared with 431,148 during September, 1916. For the first eight months of 1917 the same points reported 2,278,360 stocker and feeder cattle moved out, and 1,969,378 during the first eight months last year. During September, 1917, 904,024 feeder sheep were shipped and driven from 23 markets, and 651,182 went out from these yards in 1916. For the first eight months this year 988,539 feeder sheep are reported as moving from markets, as compared to 828,092 for the same period of 1916.

FEEDING BEEF COWS.

How Corn-Belt Farmers May Reduce the Cost of Keeping Their Cattle Through the Winter.

Feed more cheap roughage, feed cut stover in place of unhusked corn fodder, feed silage in localities where the silo proves economical, reduce the quantity of corn wherever possible—this is advice to corn-belt beef cattle raisers by the United States Department of Agriculture, which has completed a study of winter feeding of beef cows in the corn belt.

Use Farm By-Products.

Cheap feeds are recommended in a Department Bulletin, which says that with the prices prevailing in recent years the breeding herds must be made to utilize the farm by-products and convert them into beef and manure, while the more valuable products are sold or are fed for fattening animals.

It is strongly recommended that farmers who raise feeder cattle take more pains to find out the needs of their animals and feed them accordingly.

The bulletin authors point out that it is even possible, in many cases, to use by-products to such an extent that a ration containing no corn, either as grain or in fodder or silage, can be fed without detriment to the cows or their offspring.

Feeding of silage is held to be usually more economical than the feeding of corn fodder where there are enough animals to justify building a silo and where large amounts of cheap, rough feeds are not available. A much larger proportion of the stover can be used, and cattle usually do better on silage than on a dry winter ration.

Shows How to Cut Cost.

To show possibilities in cutting down feed bills the bulletin tells of a farm in east central Iowa where reduction of the corn ration would have cut down nearly one-half the cost of wintering a herd.

On this farm, for a breeding herd consisting of a grade bull and 22 grade cows, rations were provided for 165 days, prior to May 1, as follows:

Stalks, 1¼ acres, at $1 an acre.
Fodder, ⅔ acre, at $35 an acre.
Mixed hay, ¾ ton, at $10 a ton.
Corn, 2 bushels, at 65 cents a bushel.

The cows, considering the corn in the fodder and the additional grain fed, received a total of 22 bushels a head—almost a fattening ration. If the corn had been husked from the fodder and only the stover fed, there would have been sufficient roughage for the cows, the bulletin points out. Estimating that three-fourths of a ton of stover was eaten per acre of stalks, and that the stover from the fodder fed would go 2 tons to the acre, and allowing each of the cows 3 bushels of corn during the winter instead of 22, they would receive the following daily ration, which the bulletin says would be sufficient for their needs:

	Pounds.
Stover	20.6
Mixed hay	0.0
Corn	1.0

By merely eliminating the excessive amount of corn (19 bushels) from the ration, a saving of $11.40 could have been made, or from $24 to $12.60 per cow.

Department Bulletin No. 615, which deals at length with the subject, suggests that farmers not familiar with methods of working out rations write their problems to their State experiment stations, or to the United States Department of Agriculture.

ELIMINATE RATS AND MICE.

By requiring that all new buildings, wharves, and other structures be rat-proof; that existing buildings of rat-proof construction be further protected by having basement windows and drains covered with screens, gratings, etc.; and that existing buildings that are not rat-proof be made so by remodeling.

By constructing sewers and drains so that they will not provide entrance and retreat for rats.

By insisting on greater cleanliness about markets, stores, and generally throughout cities, villages, and the country districts.

By threshing and marketing grain early so that stacks will not furnish harboring places and food for rats.

By removing piles of straw, trash, and lumber which harbor rats in fields and vacant lots.

By protecting the hawks, owls, and other natural enemies of rats which are not so destructive to poultry as rats themselves.

By keeping well-trained rat dogs on farms and about city warehouses.

By keeping provisions which rats and mice will attack in rat-proof and mouse-proof containers.

By destroying rats and mice systematically by poisoning, trapping, and by organized systematic hunts.

By arousing public opinion to the realization of the importance of exterminating rats and mice.

CAN HELP SAVE COAL.

Emergency Fuel from the Farm Woodlot to Help the War Situation.

Many churches, including some rural churches, could help the fuel situation by using wood for heating, says the United States Department of Agriculture, which advocates the substitution of wood from the farm woodlot for coal, in these days of shortage, wherever practicable.

For heating churches the department points out that wood has some obvious advantages, because the heat is required only occasionally and is then wanted in large volume at short notice. After the period of required warmth is over, it is desirable that the heat should die down as soon as possible. All these qualities are obtainable with wood as with no other fuel.

For Halls and Lodge Rooms.

The same arguments that hold for churches hold in a less measure, perhaps, for rural schools, for halls used semioccasionally for lodge and grange meetings and the like. In many instances, the department points out, these buildings are heated by coal just because it has become the custom to use it, even though wood might be more economical. The amount of coal saved by any one institution might not amount to much, but in the aggregate, says the department, the possible saving is considerable.

Cord to a Ton.

In heating value, 1 cord of the best woods is said to equal 1 ton of hard coal, while a cord of some of the softer woods equals a ton of soft coal. Thus if the consumer can buy coal at $8 a ton, it would not pay him to burn wood at the same price a cord, because coal is the more convenient fuel. But if the shortage of coal becomes really acute, as seems likely, people living in wooded regions will have a great advantage over those living in the prairie and plains States, especially if they have a supply already dry. In fact, it may become a patriotic service to burn wood in order to relieve coal for the war industries and for the people in sections wholly dependent on coal.

The whole question of wood for fuel is discussed in a publication entitled "Emergency Fuel from the Farm Woodlot," which may be obtained by asking the United States Department of Agriculture at Washington, D. C., for Circular 79.

YIELDS FROM UNSPRAYED VINES.

Unsprayed grape vines produced less than half a crop this year, according to reports to the Bureau of Entomology of the United States Department of Agriculture, from French Creek, W. Va. These vines had been attacked by the grape curculio. The beetles of this species are now going into hibernation in about normal numbers.

Sows due to farrow should be separated from the herd two or three weeks before the farrowing date and put where they can farrow undisturbed.

Hunting on Sunday is prohibited in all States east of the one hundred and fifth meridian except Illinois, Louisiana, Michigan, Texas, and Wisconsin. Certain days of the week in some States constitute close seasons in which hunting is prohibited.

CANNED FOOD SAFE.

No Need to Fear Botulism in Properly Prepared Products, Say Department Specialists.

The United States Department of Agriculture has issued the following statement prepared by the bacteriologists of its Bureau of Chemistry and the States Relations Service:

There is no danger that the type of food poisoning known as "botulism" will result from eating fruits or vegetables which have been canned by any of the methods recommended by the United States Department of Agriculture, provided such directions have been followed carefully. It is possible that in a number of instances the directions were not strictly followed and that spoilage has occurred. Of course, extreme care should be taken to ascertain before eating canned goods of any kind whether they are in good condition, and if they have spoiled they should not be consumed.

Throw Away Food Spoiled in Cans.

In case of any doubt as to whether the contents of a particular can have spoiled, the safest plan is to throw it away, although all danger of botulism may be avoided by boiling the contents of the can for a few minutes, since the *Bacillus botulinus* and the toxin or poison which it produces are killed by such treatment. No canned food of any kind which shows any signs of spoilage should ever be eaten. In the cold-pack method of canning given out by the Department of Agriculture, only fresh vegetables are recommended for canning, and sterilization is accomplished by the following processes: Cleansing, blanching, cold dipping, packing in clean hot jars, adding boiling water, sealing immediately, and then sterilizing the sealed jars at a minimum temperature of 212° F. for one to four hours, according to the character of the material. Since the spores of *B. botulinus* are killed by heating for one hour at 175° F. (according to Jordan's Bacteriology and other recognized textbooks) there is no reason to believe that the *botulinus* organism will survive such treatment.

WAREHOUSE REGULATIONS.

Proposed Changes in Rules and Regulations for Cotton Warehouses.

At the final hearing on proposed rules and regulations for cotton warehouses under the United States warehouse act, held recently in the Bureau of Markets, United States Department of Agriculture, changes described as making the regulations less difficult to meet and more practical were considered by department officials and warehousemen and bonding companies represented.

Advisability of the changes considered, officials said, had been indicated at previous hearings held in the cotton States.

The regulations as they finally will be formulated from testimony presented at hearings to-day and previously will be promulgated by the Secretary of Agriculture. The change in the proposed regulations regarded as most important provides that instead of four classes of licensed warehouses, as originally contemplated, there shall be three, in addition to those owned, leased, or operated by States. These are to be classified separately as such.

Warehouses Classified in Three Groups.

Warehouses are to be classified in three groups, A, B, and C. To be classified as A, a warehouse must, first, have net assets of $5 to each bale of storage capacity, with a minimum of $5,000 and a maximum of $50,000; second, must in negotiable receipts, unless otherwise requested, guarantee weight of the cotton within 2 per cent and class within one grade; and, third, must be so constructed and equipped as to obtain an insurance rate not to exceed 50 cents on the $100 value of the cotton.

Warehouses meeting only two of the requirements are to be classified as B. Those failing in two or all three of the requirements are to be classified as C.

Other changes agreed upon in general have to do with clearer phraseology or greater elasticity.

The duty of warehousemen to carry insurance remained under debate at the close of the hearing. As now provided in the proposed regulations the warehousemen must insure cotton stored with them unless requested by the depositor to do otherwise.

NEEDS ORGANIZED BACKING.

How to Start and Manage a Farm Bureau Described in New Handbook.

That the active cooperation, advice, and assistance of farmers themselves is necessary to the success of county agent work is one of the most important lessons impressed upon officials of the United States Department of Agriculture after six years of experience with this work in the Northern and Western States. The best means of securing this local support has proved to be the establishment of a county organization usually known as a farm bureau.

To enable the county agent and local farmers to organize and conduct a farm bureau most effectively, the department has just published detailed suggestions as to methods of procedure in a guide known as "Handbook on Farm Bureau Organization for County Agricultural Agents." The plan represents the fruit of experience in this field thus far, it is said. It can be adapted readily to the varying conditions of different counties. It may be established in counties having inefficient organizations, in counties contemplating the employment of an agent, and in places where the agent is now unsupported by a local county organization.

Functions of a Farm Bureau.

The chief functions of a farm bureau as outlined in the handbook are:

(1) To coordinate the efforts of existing local agricultural forces, either organized or unorganized, and to organize new lines of effort. It does not supplant any existing organizations or compete with them, but establishes a clearing house through which all may increase their efficiency without in any way surrendering their individuality.

(2) To bring to the agent the counsel and cooperation of the best farmers in the county in planning and executing an agricultural improvement program.

(3) To furnish the necessary local machinery for easily and quickly reaching every community in the county with information of value to that community or to the county as a whole.

(4) To encourage self-help through developing and exercising leadership in the rural affairs of each community.

(5) To reveal to all the people of the county the agricultural possibilities of the county and how they may be realized.

THRIFT THOUGHT.

Spread the meat flavor over other foods, and so economize on the quantity of meat consumed, says the United States Department of Agriculture. Here is one way to spread the flavor:

Meat Stew with Dumplings.

Make a stew from a cheap cut of meat cut into small pieces, potatoes, and such other vegetables as are desired. Thicken with a little flour diluted with cold water. Serve with dumplings made as follows:

Mix and sift one cup of flour, two teaspoonfuls of baking powder, and one-fourth teaspoonful of salt. Work in with the fingers one teaspoonful of butter; add gradually one-third of a cup of milk, or a little more if needed. Roll out one-half inch thick and cut with a biscuit cutter or in square pieces. The dumplings may be steamed, baked like biscuits, or cooked with the stew. In the latter case remove enough liquid to permit the dough to be placed on the meat and vegetables.

Baby beeves give quicker returns on the money invested in them, but to raise them requires more skill, better stock, and more grain.

KEEP UP SUGAR CROP.

Farmers Urged to Maintain Next Year's Acreage and Production of Sugar Beets.

In its consideration of the problems of crop production that are of special importance during the war emergency, the United States Department of Agriculture calls the attention of farmers in the sugar-beet producing districts to the importance of maintaining the acreage of that crop next year. While the soil and climatic conditions of the country are suitable for a much greater production of beet sugar than is now made, the production for next year is necessarily limited by the available seed supply and to the relatively small areas where beet-sugar mills now exist.

Limited Area Necessitates Efficient Methods.

Because of the impracticability of shipping beets very far, the effective sugar-beet production is limited to the areas in the vicinity of the sugar mills, and it is in these areas that most of next year's crop must be grown. Both from the point of view of the welfare of the farmers of those districts and of the national interest with regard to adequate supply of sugar, it is important that the crop shall be grown as efficiently and economically as possible. It is believed that this can best be accomplished by adhering somewhat closely to the methods of crop rotation that have been worked out and tested in most of these producing districts, and by avoiding the planting of an abnormally large acreage of competing crops at the expense of a reduction of the acreage of beets. The determination of the acreage to be planted needs to be made early so that the farmers can plan their work to best advantage and the sugar companies arrange in advance for the supplies necessary to operate the mills.

The sugar requirements of this country and the allied nations during the next year or more will be such as to render it imperative from the standpoint of national interest that our production of sugar be at least maintained at its present level. It will in fact be highly desirable to enlarge it if the stocks of seed available for planting in 1918 shall permit of this.

EXTENDS MARKET NEWS.

Bureau of Markets to Have Twenty-five Stations Throughout the Country.

Eight more market stations for the collection and dissemination of market information have been established by the Bureau of Markets, United States Department of Agriculture. They are located in Cleveland, Detroit, Columbus (Ohio), Omaha, Fort Worth, Memphis, Birmingham, and Atlanta.

The Bureau of Markets also plans to open new offices in Jacksonville (Fla.), New Orleans, Indianapolis, and Des Moines. Those just established and planned to be established will bring the total of offices to 25.

The bureau recently extended its private leased wire to Denver, and October 23 it began use of a direct line connecting southern offices and Washington.

Dried beans recently have been added as a subject of information in the market news service of fruits and vegetables, and it is planned to begin soon a market news service on citrus fruits. Particular attention is to be given to the Florida citrus industry. The work is to be similar to the regular market news service now in operation. Prices will be quoted in principal markets of the country. Information on car-lot movements will be published and a daily bulletin containing all available information on the market situation will be distributed to growers and dealers.

The bureau also has arranged for daily market news bulletins on the celery crop, to be issued from principal cities. F. o. b. quotations will be given out from Kalamazoo, Mich., and Rochester, N. Y.

GRUBBING POISON LARKSPUR.

Method to Prevent Poisoning Herds Grazing on National Ranges.

At least 5,500 head of cattle have been lost annually during the last three years from poisonous plants on ranges in the National Forests. Larkspur is responsible for about 90 per cent of the loss. As the result of numerous tests to discover ways of eradicating this plant, the Forest Service announces that grubbing out the larkspur proves 95 per cent effective and is practicable on most of the ranges. In a recent publication of the United States Department of Agriculture, Farmers' Bulletin 826, a specialist of the Forest Service describes the grubbing method.

Eradication by digging the plants out is practicable, the Forest Service specialist says, because larkspur grows mainly in isolated patches. Grubbing, furthermore, appears to offer a permanent solution of the problem, while other methods which have been tried are more in the nature of temporary expedients. It is believed that at least 95 per cent of the plants can be killed by the first grubbing, and that regrubbing one year after should practically eradicate this plant. Reliable workers properly supervised should be employed and the work should be done early in the season when the larkspur plants show up prominently.

Cost of Grubbing.

In extensive tests on the ranges of four National Forests the cost of the grubbing ranged from $3.65 to $10.10 an acre, the cost depending upon the number of plants to the acre, the texture of the soil and whether or not the plants grew in the open or among willows or other brush. The cost of the second grubbing should not exceed $1 an acre, the specialist says.

The fencing of larkspur areas and the use of sheep, which are not affected by the plant, as methods of removing the larkspur danger on cattle ranges, also is discussed in the bulletin recently published. These methods have a limited application and are not considered as effective as grubbing. The bulletin discusses in detail the operation of removing the larkspur plant most effectively by grubbing and tells what tools are necessary.

PROTECTION FOR GAME.

States Strengthen Game Laws or Provide for Preservation.

The perpetuation of migratory birds and game was made the subject of over 200 separate State and other laws passed in 1917, according to the summary of game laws of that year issued by the Bureau of Biological Survey, United States Department of Agriculture. Thirty-eight of the forty-three States which held legislative sessions made more or less extensive changes in their game laws. Several codified their statutes, and effort to bring open seasons for migratory birds to conform to the Federal regulations was widespread. A number of shooting seasons were shortened, and in some States the killing of such birds as sage grouse, quail, prairie chickens, wild turkeys, doves, and shore birds was prohibited in certain localities for several years. The Mount McKinley Park in Alaska was made a Federal game reservation. Forty State game preserves were established by State action in ten States, as follows: Sixteen in California, six each in Montana and Wyoming, four in Arizona, three in Idaho, and one each in Oklahoma, Oregon, Tennessee, Washington, and Wisconsin.

Changes in Laws.

Changes in laws affecting big game were largely directed toward protecting deer, elk, antelope, and sheep.

The bulletin, "Game Laws for 1917," which analyzes in detail the game laws in each State, should be of interest to bird lovers and of special value to sportsmen who wish to observe the statutes.

TO STUDY WHITE ANTS.

Experiments Are Planned for Determining Methods of Treating Wood to Prevent Damage by These Pests.

A termitarium or special pit for breeding and observing termites or "white ants" is being planned by the branch of forest entomology of the United States Department of Agriculture. The object of the studies and experiments to be conducted is to discover chemical preservatives and to determine methods of treating with them wood and wood products, especially such as are intended for export to the South and Central American trades, which will prevent attack by these insects.

These ants cause a considerable economic loss by honeycombing telephone and telegraph poles, mine props, construction timbers, wooden foundations of buildings, and, generally, wood in contact with the ground.

Manufacturers Seek Information.

Many requests have been received from large manufacturers and utilizers of wood products for information on methods of treating wood to prevent damage by these ants. Many firms are anxious to secure a market for their wood and wood products in tropical and south temperate countries, but, owing to the fact that many kinds of North American woods are subject to serious damage and often entire ruin by white ants prevailing in those countries, it is difficult to establish that trade. It will be impossible unless the wood or wood products can be treated to prevent attack by these insects.

The base of the termitarium will be underground, of concrete, and the roofing of glass similar to a greenhouse. In general, it will be similar to the fungus pits used in studying the action of wood-destroying fungi. By means of the pit and an independent heating plant the interior will be maintained at a fairly even temperature the year around and the insects will thus be enabled to continue their activities throughout the year, and thus cut in two the length of time necessary for the observations and experiments.

DESTROY JIMSON WEEDS.

Pests which are injurious to potatoes, tomatoes, eggplant, and other vegetables are harbored by Jimson weeds, and for that reason these weeds should be systematically destroyed. The Jimson weed is a host for the red spider (*Tetranychus bimaculatus* Harv.) among other pests, according to the entomological service of the United States Department of Agriculture.

CAMP TO AID FARMERS.

South Carolina cooperative creameries have been granted permission by the War Department to erect an ice-cream plant within Camp Jackson, Columbia, S. C. The farmers of South Carolina have been informed that camp quartermaster officials will, so far as possible, purchase locally agricultural products. The Clemson College extension department and the Department of Agriculture have had this matter under consideration with the War Department for some time.

CATS AND GAME.

The cat because of its destruction of game birds and small game is beginning to figure in the statutes. Massachusetts in 1917 passed a law prohibiting possession of cats on Meskegat Island or the bringing of any cats to the island and Michigan declared cats following on the track of game birds or small game public nuisances and decreed that the owner who permits them to run at large after notice from the game commissioner shall be deemed guilty of a misdemeanor.

In the semiarid sections poisoned-bran bait for grasshoppers should be distributed in the late afternoon or early evening.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, R. A. PEARSON.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. SPILLMAN, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, A. D. MELVIN, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals and experiments in fur farming.

Office of Public Roads and Rural Engineering, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Enforces Cotton-Futures Act.

Division of Publications, JOS. A. ARNOLD, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., NOVEMBER 28, 1917. No. 17

AGRICULTURE AND THE WAR.

Secretary Houston Discusses Problems of Production, Conservation, and Rural Labor.

The rural labor problem and important phases of agricultural production and conservation were discussed by David F. Houston, Secretary of Agriculture, in his address before the American Association of Agricultural Colleges and Experiment Stations, Washington, November 14. Secretary Houston said:

According to the calendar, it is almost a year to the day since my last meeting with you. Judged by the experiences through which we have passed, it seems more like a generation. Then this country was at peace, though its patience was being sorely tried. Now it is at war for reasons which I need not discuss before this body. It had no alternative. It either had to fight or to admit that it had no honor, was not a free Nation, and would henceforth be subjected to a medieval power that in the last analysis knows no law but might. The Nation was living on a peace basis and had organized itself accordingly. It was not fully prepared for war in any respect; but it was fortunately circumstanced in the character of its agricultural organization and the number and efficiency of its expert agencies. In fact, in efficient machinery for directing agricultural activity as represented by the land-grant colleges, the Federal Department of Agriculture, farmers' organizations, and its alert and patriotic rural population, it excelled any other two or three nations in the world combined. The Nation may well pride itself on the fact that it had had the foresight generations ago to lay deep its agricultural foundations. I congratulate the representatives of the land-grant colleges on the fine opportunity for service presented to them and on the splendid way in which they have seized it. The Department of Agriculture has had great comfort in the thought that these institutions, ably planned and wisely directed, existed in every part of the Nation and stood ready not only to place themselves at the service of the National Government but also to take the initiative in a vast number of directions.

The problem confronting us in the field of farm labor was not, and is not, an easy one. To its solution the Department of Labor, the Department of Agriculture, and many State agencies are giving constant thought.—Secretary of Agriculture, November 14.

The Response of the Farmers.

When a state of war was declared on April 6, the food situation was unsatisfactory. The need of action was urgent and the appeal for direction was insistent. The Nation looked for guidance primarily to the Federal Department and to the State agencies which it had so liberally supported for many generations. It was not disappointed. In a two days' session at St. Louis the trained agricultural officers of the country conceived and devised a program of legislation, organization, and practice the essential features of which have not been successfully questioned and the substantial part of which have been enacted into law and set in operation. This great democracy revealed its inherent strength. Initiative was not wanting in any part of the Union. Effective organization quickly sprang up in all the States and the services of experts everywhere immediately were made available. The response of the farmers was prompt and energetic and the results are that crop yields have been abnormally large and the Nation is able not only to feed itself but in considerable measure to supply the needs of those with whom we are cooperating.

There must be no breakdown on the farm—no failure of foods, foodstuffs, and clothing. The duty is pressing of furnishing abundant supplies for our own people and, in large measure, for the peoples with whom we are associating. The necessity of increasing production and of saving is no less important in all other directions.—Secretary of Agriculture, November 14.

Of course there were delays. The process of legislation was unconscionably prolonged; but, in the end, action was generous and adequate. There have been confusions also—confusions of agencies, and, to some extent, of purpose. New forces have been set in operation suddenly and new machinery created. As time has passed, better adjustments have been effected and in the future more complete coordination will undoubtedly be secured.

The Function of the Food Administration.

To the normal forces of the Government dealing with agriculture and rural problems there has been added an emergency agency with great and unusual powers, with enormous possibilities for good, and with a remarkable record of achievements already to its credit. It has enlisted in its ranks men of wide experience, fine spirit, and high ideals, many of whom are gladly volunteering their services for the common cause. I refer to the Food Administration under the direction of Mr. Hoover.

The relation between this agency and the other organized agricultural forces of the Nation is intimate and fundamental. It is impossible completely to dissociate them, and it would be undesirable to do so.

The problem in part is a common one; and it is of the first importance that the work be done in the closest cooperation and with an eye single for the public good. There is no need for undue duplication of effort and no causes of friction which can not be removed through an intelligent conception by each agency of the powers and purposes of all and by a spirit of mutual accommodation. In a broad way, it is agreed that the prime function of the Department of Agriculture shall be the stimulation of production, the conservation of products on the farm through all the normal and approved processes, the promotion of better marketing and distribution of products from the farms to the markets, the prosecution of the work in home economics along usual lines, the dissemination of information, and the extension of all these activities as authorized by law. In a similar way, the principal function of the Food Administration is the control and regulation of commercial distribution of foods; that is, of

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products which have reached the markets are in the channels of distribution or in the hands of consumers, their conservation by consumers, the elimination of waste, and the handling of foods and feeds in the market by legal means through its regular officials as well as through its volunteer agencies. In the main, the Department of Agriculture

> **This struggle is one which calls not only for enormous resources but also for invincible determination and endurance. It is a test even more of the spirit than of physical strength. That we have the physical resources in larger measure than any other Nation in the world is a matter of common knowledge. We do not yet fully realize the enormous power of the Nation.—Secretary of Agriculture, November 14.**

deals with all the processes of farming up to the time products reach the market, till they are in the requisite form for consumption and are available for the purpose. At this point the Food Administration enters and exercises its wide powers of regulation, direction, and suggestion. Where the Food Administration through its powers can be of assistance to the Department of Agriculture in its field, it is at liberty freely to make suggestion, and, when necessary, to cooperate in execution; and the same relation obtains as to the department's participation in Food Administration matters in which it has a vital interest and toward the promotion of which it can be of assistance. This is the substance of the agreement originally entered into between the Food Administration and the Department of Agriculture and will be more satisfactorily observed as the agents and divisions of the two departments familiarize themselves more fully with their tasks and with the prescribed lines of effort.

The Problem of Farm Labor.

Obviously the making of a program for the agricultural activities of the Nation did not end with the St. Louis conference. Thought, action, and cooperation between the members of this association and other State agencies on the one hand and the Federal department on the other have been continuous. Attention has been given without cessation to problems in the field of labor. It was obvious that difficulties would be presented and that apprehension would run beyond the actual condition. An army could not be raised without taking men from every field of activity; and it would have been unfair to any class of workers in the community to have proposed its exemption. It was impossible in the haste of the first draft satisfactorily to work out in detail the principle of selective service; but, nevertheless, under the regulations, consideration was given throughout by exemption boards and by the officers of the War Department to the needs of agriculture. With ampler time at its disposal, the War Department has worked out a system of classification which gives due regard to the necessity of retaining skilled farmers and expert agricultural leaders on the farms and ranches and in the educational and administrative services. No less a burden in certain sections was imposed by the redirection of industry and the large calls made for skilled labor in essential manufacturing enterprises.

The problem confronting us in this field was not, and is not, an easy one. To its solution the Department of Labor, the Department of Agriculture, and many State agencies are giving constant thought. The Department of Agriculture has placed in each State an officer whose sole duty it is to assist in the mobilization of labor in the rural districts, in the distribution of it from places where it is not temporarily employed to places where it is urgently needed, in the fuller utilization of forms of labor not heretofore fully employed, and in securing more perfect cooperation among farmers in the same district. The Department of Labor has undertaken to make available not

> **With ampler time at its disposal, the War Department has worked out a system of classification which gives due regard to the necessity of retaining skilled farmers and expert agricultural leaders on the farms and ranches and in the educational and administrative services. * * * The problem is one for constructive handling. * * * Attention has been given without cessation to problems in the field of labor. * * * I am confident that with the assistance of all the organized agencies and the alert and cooperative action of the farmers of the Nation the situation can be met and that those remaining on the farms can produce as much or more than has heretofore been available.—Secretary of Agriculture, November 14.**

only for industrial but also for rural undertakings urban labor which is at the time disengaged. The problem is one for constructive handling. I am confident that with the assistance of all the organized agencies and the alert and cooperative action of the farmers of the Nation the situation can be met and that those remaining on the farms can produce as much or more than has heretofore been available. This is the aim before us and it must be attained.

Production in 1918.

The pressing problems of the spring season were scarcely out of the way before the program for the approaching fall was taken under consideration. The question presented was how to get ready for the immediate future and for the ensuing year. A committee of experts was appointed in the department to make suggestions for future action, especially with reference to winter wheat planting. The matter was considered from every angle. After a tentative conclusion was reached regarding wheat and rye, it was transmitted to the experts of the different States for criticism and suggestion, and, as a result, it was finally determined to propose the planting of 47,337,000 acres of winter wheat and 5,131,000 acres of rye. The proposals were then brought to the attention of the grain farmers and five conferences were held in different sections of the country. A campaign to make the proposals effective was then entered upon. The actual results can not be determined at this time, but early reports indicate that farmers intended to increase their wheat acreage by 10 per cent and rye by 3, and those received later are to the effect that there has been an increase in nearly every State of the Union.

In somewhat similar manner the highly important problem of increasing the number of live stock of all kinds and of insuring a very much greater supply of meats and fats was promptly attacked. Conferences were held with experts and leading stockmen of the Nation and the lines of action suggested are being vigorously followed.

Must Be no Breakdown on the Farm.

I shall not offend you by attempting to impress upon you the need of continued effort to increase production and to promote conservation and economy. There must be no breakdown on the farm—no failure of foods, foodstuffs, and clothing. The duty is pressing of furnishing abundant supplies for our own people, and in large measure for the peoples with whom we are associating. The necessity of increasing production and of saving is no less important in all other directions. A nation pays for a war as it proceeds. Whether it acquires control of the wealth through taxes or through loans, it nevertheless meets the burden at the time, and the extent of the burden it can bear, if it is not to retrogress, is measured in the main by its savings. The fact that part of the people instead of all the people temporarily directly bear the burden makes no essential difference in the argument. There is sufficient justification for securing control of wealth in part through loans rather than entirely through taxation, but the fact remains that the burden is borne by the Nation as a

> **A finish must be made of all things feudal, humanity must be safeguarded, democracy must be impregnably entrenched, the lesson must be forced home that the worthy and tolerable national aspiration is to have a clean household from cellar to attic, and a durable and righteous peace must be secured.—Secretary of Agriculture, November 14.**

whole at the time. It is not transferred to future generations. An obligation merely is incurred by all the people subsequently to reimburse those whose means were placed at the disposal of the Nation. Two things, therefore, are of the utmost importance—to bend every effort to increase production and to be equally alert and efficient in effecting savings.

Let us then continue our efforts with unabated zeal. I am confident that we shall not fail to receive the necessary support. No estimates have been made as yet for the continuance of the operations carried on under the food production act. It has seemed wiser to await developments. If the war lasts, and it appears desirable to continue the emergency activities, estimates will be submitted in ample season and I have no doubt that the Congress will make available such appropriations as the circumstances may require.

Calls for Invincible Determination.

This struggle is one which calls not only for enormous resources but also for invincible determination and endurance. It is a test even more of the spirit than of physical strength. That we have the physical resources in larger measure than any other nation in the world is a matter of common knowledge. We do not yet fully realize the enormous power of the Nation. If in the sixties, when we were a simple, crude, undeveloped Nation, doing things, relatively speaking, on an "oxcart" basis, with the question yet undetermined whether we were to be one Nation or two, we could wage the mightiest war up to that time and issue from it with unrivaled power, what can we not do to-day, with a united people and with immeasurably greater resources, if our spirit is right and our purpose is steadfast?

The Duty of Each Civilian.

Unless the descendants of the men who followed Grant and Lee are degenerate there can be no question of the ultimate outcome. It is time for each individual to search his heart and to purge his mind and purpose of selfish motives. I can conceive that each individual, no matter what class in society he belongs to, whether he be a manufacturer, a farmer, a laborer, a lawyer, or a scientist, will take pains to see that he attain for himself and his operations the highest degree of efficiency and give the maximum service or products to the Nation at the lowest cost consistent with efficient operation and effective standards of living; but it is inconceivable to me that any patriot should aim to do less or to seek more selfish advantage. It is obviously the duty of each civilian to reveal by his conduct the same standards of patriotism, devotion, and sacrifice, if necessary, either of life or property, that we expect from the men whom we send to the front directly to bear the brunt of battle.

I am confident that it is in this spirit that you, all the other agricultural leaders, and the great body of farmers whom we serve, approach the grave tasks confronting the Nation. There can be no turning back. The rights of the Nation must be vindicated and its institutions preserved. Those who would keep the people of the world from going about their business in orderly and decent fashion must be taught a lesson once for all. A finish must be made of all things feudal, humanity must be safeguarded, democracy must be impregnably entrenched, the lesson must be forced home that the worthy and tolerable national aspiration is to have a clean household from cellar to attic, and a durable and righteous peace must be secured.

When a state of war was declared on April 6 this great democracy revealed its inherent strength. Initiative was not wanting in any part of the Union. The response of the farmers was prompt and energetic, and the results are that crop yields have been abnormally large and the Nation is able not only to feed itself but in considerable measure to supply the needs of those with whom we are cooperating.—Secretary of Agriculture, November 14.

EPOCHS IN FEVER-TICK FIGHT.

To many farmers in Southern States that have been infested by the cattle fever tick December 1 will be a day marking an epoch, for on that date 65,520 square miles of southern territory—the largest amount ever freed at one time—will be liberated from the Federal quarantine placed to prevent the spread of cattle fever.

But in the history of tick eradication there has been another epochal day, one that will remain epochal as long as diseases—lower animal and human—persist on the earth. That day was when the true functions of the cattle fever tick were discovered, soon after the bureau of Animal Industry of the United States Department of Agriculture undertook sn 1884 the problem of combating the disease.

The discovery that ticks can carry germs of disease from one animal to another was the first instance in which the important rôle of insects as carriers of disease was ascertained. From it arose new procedures in preventive sanitation. Since then it has been learned that mosquitoes carry malaria and yellow fever; that the rat flea carries bubonic plague; and the house fly typhoid fever.

Formerly no attention was paid to the carriers. Only treatment of the patients was considered necessary. Now mosquitoe are screened out of buildings and exterminated, rats are killed, house flies are screened, starved, or "swatted," and the cattle fever tick, to which perhaps the world may owe a debt because its ravages provoked the inquiry which has been of immense importance in the fight against all diseases, is destroyed by arsenic treatment and starvation.

Wisconsin has extended its provision relative to seizure of paraphernalia used in violation of game laws to include automobiles, which, when used by persons hunting illegally, may be confiscated by conservation officers.

HISTORY OF TICK FIGHT.

How More Than Half of Quarantined Territory Has Been Freed of Cattle Fever Ticks.

Advancing well beyond the half-way mark in freeing the South from the cattle fever tick, removing the Federal quarantine from cattle shipment in 70,754 square miles of nine Southern States, driving a broad wedge of tick-free territory through the tick lines to the Gulf of Mexico—the fight against the destructive parasite must count 1917 as its greatest year so far.

December 1, when 65,520 square miles—the largest amount of territory ever freed at one time—will be added to the liberated areas, will be the greatest day in the campaign since it was started actively in 1906, and it will be celebrated as such in the States and counties to which it will signalize undeniably long strides toward realization of the South's merited position as a cattle-raising country.

The governor of Mississippi, whose people have made their State the first touching the Gulf to be entirely rid of the cattle tick, has designated December 1 a day of rejoicing in the Commonwealth. A celebration at Jackson, the capital, and others at county seats have been arranged. At these ceremonials congratulations on the achievement will be received from the United States Department of Agriculture and from governors of other States. Celebrations of the same character are to be held in the various counties freed from quarantine in eight other States—Alabama, Arkansas, Florida, Georgia, Louisiana, North Carolina, Oklahoma, and Texas.

Faltering, slow, and uncertain at first, the advance against the cattle tick in 11 years has gained such impetus that it now literally is sweeping forward. There is now no doubt of final success and there are great hopes that the goal of "a tick-free South in 1921," which also will mean American territory entirely freed from the parasite, will be realized.

Ticks Long Have Infested Cattle in South.

Cattle in the Southeastern Atlantic and Gulf States have been infested with the tick since cattle first were introduced into those regions. It is thought probable the ticks were introduced into the country by cattle from Spanish herds. The history of the tick in the South is largely a history of the agricultural life of that section. In it are intertwined the great events of a century or more that have attended the transformation of the South from a wilderness into a wide and prosperous agricultural domain.

Ticks carry a fatal disease between cattle. Calves survive the effect of it, but very few

older cattle live long when attacked for the first time. But for the fact that the calf that lives after the attack becomes partially immune, there would now be no cattle in the tick-infested portion of the South. Southern cattle always have caused disease among northern cattle whenever they, carrying ticks, have left their home territory and been driven into or through adjoining territory. A notorious example of such driving occurred after the Civil War when Texas and Indian Territory cattle were driven into Colorado and Kansas, leaving death in their trails for the native cattle. This caused the "cowboy wars," in which it was sought to turn the cattle back by force of arms, and also caused the enactment of stringent State laws.

During these years of settlement the cattle tick had extended northward until its distribution was about coincident with that of cotton. From this vantage ground it was scattered by driveway and by rail into northern markets and caused annual outbreaks of Texas fever, as the disease was then called, throughout the North. Legislation in various States sought to check the disease at that time, but, owing to ignorance of the manner of its spread, was powerless.

Quarantined Territory First Defined in 1889.

Finally, with the formation of the Bureau of Animal Industry of the U. S. Department of Agriculture in 1884, the Federal authorities, under authority of Congress, began the fight against the tick. The bureau first sent out agents to define the line between infected and noninfected territory, and in the annual reports of 1884 and 1885 several maps were published showing its location. The first order defining and mapping the quarantined infected territory was published in 1889. The driving or transporting of cattle from the infected to the free territory was forbidden, except for a short season in winter and except for immediate slaughter when transported by rail or boat and discharged into quarantine pens at certain recognized slaughtering centers. This constituted a quarantine which has existed with timely modifications ever since.

The beginning of tick eradication is traced to a meeting of the Commissioners of Agriculture of the cotton-growing States held in Raleigh, N. C., in 1899, when the North Carolina commissioner directed that the State's aim to improve the cattle industry by tick eradication be presented. From this beginning until 1906, 12 counties in North Carolina had been released from quarantine. The association of the Commissioners of Agriculture and various allied organizations, influenced by the eradication work of North Carolina and the results obtained by Federal, State, and other investigators, together with the growing necessity of ameliorating the effects of the boll-weevil invasion, prevailed upon the United States Congress to make an appropriation in 1906 to empower the United States Secretary of Agriculture to inaugurate a plan of cooperation with the authorities of Southern States in tick eradication.

In the Annual Report for 1907 of the Chief of the Bureau of Animal Industry it was stated: "Encouraging progress has been made in the eradication of cattle ticks from the Southern States. This work, which was begun in the summer of 1906 under an appropriation by Congress of $82,500 * * * is no longer an experiment. The results already accomplished demonstrate that the extermination of this costly pest is not only possible but practicable, though several years may be required for the completion of the work."

The years since that report have been years of meeting and overcoming obstacles until now, when the real magnitude of the task can be appreciated, it is certain that nothing can permanently hold up the work.

Tick Fever and the Manner of Its Transmission to Cattle.

The story of the cattle tick (known scientifically as *Margaropus annulatus*), in relation to the part it plays as carrier of the tick-fever organism, is one of the most interesting in the annals of scientific investigation. It has been described by one writer as a "romance in pathology." It may be recalled that in the early days of our cattle-exporting trade the Texas longhorn was most prominent. It soon became known that these cattle, although apparently healthy themselves, caused a deadly disease in other cattle, the part played by the tick being at that time unknown and unsuspected. Hence the disease acquired the name of Texas fever. The tick, however, is no respecter of localities so long as they are suitable for its propagation, and tick fever occurs wherever the combination of infected ticks and cattle is present. The problem of combating the disease was undertaken soon after the Bureau of Animal Industry was organized in 1884, and a few years later the epoch-making discoveries of the bureau scientists led to the true cause of the disease being found.

The discovery that ticks can carry germs of disease from one animal to another was the first instance in which the important rôle of insects as carriers of disease was ascertained. From it arose new procedures in preventive sanitation. Since then the noxious rôles of various other insects have been learned; for example, mosquitoes carrying malaria and yellow fever; the rat flea, bubonic plague; the house fly, typhoid fever. Formerly no attention was paid to the carriers; only treatment of the patients was considered necessary. Now mosquitoes are screened out of buildings and exterminated; rats are killed; and house flies are screened, starved, and "swatted;" all of which has greatly reduced the number of victims of the mentioned diseases. The discovery of tick inoculation was made through the joint efforts of several members of the bureau staff.

A systematic study of southern cattle fever, begun in 1888, developed that the disease, very similar to malaria in man, was caused by a minute protozoan parasite that invaded the red corpuscles of the blood and in acute cases destroyed them so fast that the spleen became clogged with débris from the blood, the liver filled with bile, and the

PROGRESS IN TICK ERADICATION, JULY 1, 1906, TO DECEMBER 1, 1917.

Figures prepared by the Bureau of Animal Industry, United States Department of Agriculture, show as follows the progress in cattle fever tick eradication July 1, 1906, to December 1, 1917:

State.	Counties infected July 1, 1906.	Counties infected Dec. 1, 1917.		Counties released.		Area infected July 1, 1906.	Area infected Dec. 1, 1917.	Area released.	
		Whole.	Part.	Whole.	Part.				
	No.	*No.*	*No.*	*No.*	*No.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*Per cent.*
Alabama	67	27	3	37	3	51,279	19,918	31,361	61
Arkansas	75	27	6	42	6	52,525	20,952	31,573	60
California	15	.....	.....	15	.....	79,924	.....	79,924	100
Florida	50	46	1	3	1	54,861	49,961	4,900	9
Georgia	149	79	.....	70	.....	57,438	35,324	22,114	39
Kentucky	2	.....	.....	2	.....	841	.....	841	100
Louisiana	63	49	2	12	2	45,409	37,824	7,585	17
Mississippi	81	.....	.....	81	.....	46,362	.....	46,362	100
Missouri	4	.....	.....	4	.....	1,386	.....	1,386	100
North Carolina	75	21	2	52	2	37,365	9,674	27,691	74
Oklahoma	[1] 61	22	10	25	14	47,890	22,377	25,513	53
South Carolina	44	10	.....	34	.....	30,495	8,619	21,876	72
Tennessee	42	.....	.....	42	.....	16,987	.....	16,987	100
Texas	198	154	3	41	3	191,885	142,918	48,967	26
Virginia	30	3	1	26	1	13,918	1,686	12,232	88
Total	956	438	28	486	32	728,565	349,253	379,312	52

[1] Of the 61 counties, 56 were wholly quarantined and 5 were partly quarantined.

red coloring matter of the blood was passed off with the urine. Intense fever developed and the animal usually died in from one to four days after first appearance of symptoms of illness. The death rate was usually low in herds with many young or insusceptible animals; among old cattle it ran as high as 80 or 90 per cent. It was further found that the disease was acquired soon after the young of the cattle tick—called seed ticks—attached to the cattle. Acquisition of the ticks was found to be governed by their life history, on which is based the science of tick eradication and also the rules of quarantine. The life history is as follows:

Adult ticks carried by cattle fall to the ground, and in about a week each female lays from 2,000 to 4,000 eggs, each of them carrying fever germs. Hatching in about three weeks of warm weather, but requiring a much longer time in cold weather, the seed ticks remain on the ground or on grasses, hungry and waiting for a chance to attach themselves to a cow or steer. Attaching themselves, the ticks hunt for places in the hide they can penetrate and, finding them, immediately begin to suck blood and to grow. Two immature stages of development precede the adult stage, when the males fall off the animal and die, and the females also fall off, but lay their eggs on the ground before they die.

Arsenical Dipping Vat Is Effective Weapon.

The method of tick eradication found to be effective and now used almost exclusively is the arsenical dipping bath. This method will rid a county of ticks in a single season, it has been shown. For the method to be effective every cow and steer in the county must go through the bath once every two weeks during the season.

The ticks clinging to the cattle are killed by the arsenical bath. Those that attach themselves before the next bath are killed in that emersion before they have time to lay eggs. Those forced to remain in the grass die of starvation.

The dipping vat with arsenical dip was first used for tick eradication in 1909 by a Federal inspector in Alabama. He followed the method used in stockyards of dipping for scabies, and also the Federal system of oil dipping for animals carried in interstate commerce. Previous to 1909 swabbing and spraying by hand were the methods used in the intrastate work. The vat method has been found to be not only effective and speedy but to be inexpensive.

In September, 1917, 21,095 public or private vats were available in 10 Southern States. The work in 356,678 square miles of territory was supervised by 272 inspectors of the Bureau of Animal Industry, 351 State inspectors, and 1,209 county inspectors.

A powerful aid in the tick fight has been the passage of State laws enabling effective Federal cooperation. In 1906, when the first Federal appropriation to inaugurate a plan of cooperation with States was made, such laws were in existence in only seven Southern States—Virginia, North Carolina, Georgia, Kentucky, Tennessee, Oklahoma, and California. Since then laws have been enacted in Alabama, Arkansas, Florida, Louisiana, Mississippi, South Carolina, and Texas. The only State affected by ticks and missing from this list is Missouri, in which only four counties were infected in 1906, and which is now completely free.

Federal cooperation does not mean that the National Government builds the vats nor supplies the money and materials with which to "dip the tick" and kill it. But it does mean that the Bureau of Animal Industry of the United States Department of Agriculture furnishes trained men to supervise the work of dipping and show the people of any county how to make a beginning. Appreciation of this cooperation is shown by the fact that every State and most counties in the tick regions have appropriated public moneys to take advantage of the scientific and practical knowledgo placed at their disposal by the Federal Government.

To survey adequately the benefits from tick eradication a glance must be taken at the baneful effects of infestation. Cattle not only die from the fever transmitted by the tick but they lose greatly in blood, meat, milk production, and reproductive power. The ticks suck the blood that should go to make beef and milk; prevent sale of infested cattle outside the quarantine area except for immediate slaughter and at almost any price the buyer chooses to pay; and close the door to importation of better stock to improve the quality of a herd, for new cattle brought into ticky country are easy and luscious prey for the tick.

Many Cattle Raisers Praise Fight Against Tick.

Benefits from tick eradication are told in hundreds of letters received annually by the Bureau of Animal Industry. The consensus of opinion in these letters indicates that on the average cattle freed of ticks are enhanced in value about $10 a head, weigh one-fifth heavier, grade one-fourth better, and are safe from cattle fever and from shrinkage on account of ticks. The letters also show that where the tick is dipped out the southern cattle industry is growing, that there is more improved blood, that the milk yield of cows is increased about one-fourth, and that there is an increase of forage crops and silos.

Here are some reasons why, in the opinion of Department of Agriculture officials, tick eradication is important, especially at the present time, and why the fight now half won must go on to complete victory:

(1) Good agriculture is dependent upon animal husbandry, and of the domesticated animals cattle are the leaders for fertilizer purposes; (2) the supply of beef is not keeping pace with the demand and must be increased to meet the needs of America and the allies in the war; (3) cotton production, menaced by the boll weevil, must be kept up by cattle fertilizer and must be supplemented by cattle raising in order that the cattle farmer may thrive and be able to raise cotton at all; (4) the cattle business of the South, long a negligible item in most States because of depression caused by the ticks, can be made the equal of that of any country.

The progress made so far in tick eradication is taken to mean that every square mile in the South will be freed from the cattle tick within a few years. From the areas released from tick domination and quarantine will go forth to the areas still infested not only the inspiration of accomplishment but also the practical help of the Federal inspectors released from work in the counties just freed and ready for labors in new fields.

THRIFT THOUGHT.

A large amount of good food in potatoes, including most of the valuable mineral elements, is wasted by ordinary methods of peeling. Baking "in the jackets" also means a loss (if the jacket is not eaten), since much of the meat of the potatoes sticks to the stiffened skin and is discarded. Here is a suggestion made by the United States Department of Agriculture for reducing the discarded portion of the potato to a minimum:

An Economical Way to Peel Potatoes.

Drop washed potatoes in a vessel of rapidly boiling water and allow them to remain 10 minutes. Remove and strip the thin skin as when potatoes are peeled after thorough cooking by boiling. The potatoes will still be practically raw and may be handled like raw peeled potatoes in preparing any dish, as scalloped, French or German fried potatoes, potato chips, etc.

One excellent way to cook the skinned potatoes is to bake them. The entire potato, including the thin, golden-brown crust may be eaten.

This recipe for economical peeling of potatoes was furnished by a housewife and tested by the United States Department of Agriculture. The department will be glad to have other housewives write of thrift practices which they have found useful in their homes.

There can be no turning back. The rights of the Nation must be vindicated and its institutions preserved. Those who would keep the people of the world from going about their business in orderly and decent fashion must be taught a lesson once for all.—Secretary of Agriculture, November 14.

PROVIDE FOR MACHINERY

Orders for Repair Parts and New Machines Should Be Placed as Soon as Possible.

During the coming winter farmers should give careful attention to the work of repairing all machines which will be used next season. Also, orders for repair parts and new machines should be placed as soon as possible. This will acquaint manufacturers and their agents with the demand in different sections and enable them to make the best possible distribution. At the same time it will eliminate expensive delays in transportation at the busy season.

Economical Replacements.

The use of the largest and most improved farm machinery, always desirable, is of special importance. Where large acreages are farmed the largest machinery is the most economical. Many of the latest machines embody improvements which will often justify their purchase, where obtainable, from the standpoint of economy, even though the old outfit is still serviceable.

When new machines are bought on large farms to replace others still capable of service, it is suggested that the owners afford an opportunity to other farmers who operate on a smaller scale to purchase this replaced machinery at a reasonable price. This plan should benefit both parties.

Dispose of Worn-Out Implements.

All worn-out machinery should be sold for junk at the first opportunity, the specialists advise, first removing all bolts or other parts which might be useful in repairing other equipment. It is usually false economy to attempt to use a worn-out machine, as the time wasted with breakages and other delays and the extra power required for its operation usually more than offset the saving effected by continuing it in use.

Importance of Oiling.

More damage can be done to a machine in half an hour through lack of oil or grease on some bearings than by a whole season's exposure to the weather, the specialists declare. For this sort of neglect there can be no excuse, it is said. Operating a machine without lubrication, especially when the bearings are slightly rusty, will quickly result in the wearing away of the metal, often to a considerable depth, in a very few minutes. Expensive breakages, as well as serious delays, also may be caused by operating machines on which nuts have worked loose or have come off entirely, allowing bolts to loosen or drop out.

All practicable steps should be taken to preserve machinery now on hand. Needless exposure to the weather should be avoided, and in cases where it is not practicable to house machinery when idle, all bearings should receive a thorough application of heavy oil or grease to keep out moisture and prevent rust. It is believed that on many farms machinery could be more adequately sheltered in the buildings available by exercising care in placing them so as to economize space.

INSPECT FOR SHIPPERS.

Inspection Service on Fruits and Vegetables Established at Principal Markets.

The food-products inspection service established by the United States Department of Agriculture under the authority of the food-production act was made available November 1 to shippers of fruits and vegetables in two large markets—New York and Chicago.

It will be extended in the next few weeks to Kansas City, Boston, Philadelphia, Pittsburgh, Minneapolis, Fort Worth, Houston, and other markets. The supervising inspectors in the first two districts now are training inspectors for the work and are preparing to receive applications for inspections.

It is thought likely that for some time inspections will be made mostly of cars of produce concerning the condition of which there is some dispute. Applications must be made by the shipper or his authorized agent and may be made by telegraph, telephone, letter, or in person. Applications must contain a complete description of the shipment, including the name and address of the shipper and receiver, car number, initials and routing, contents, and the particular condition concerning which inspection is requested.

Inspectors will certify as to the condition of fruits and vegetables only. No charge will be made for the service. An inspection certificate will be issued regarding each car or lot inspected and the original delivered or mailed to the shipper or his representative. Upon request of the shipper or his representative all or part of the contents of the inspection certificate will be telegraphed to him at his expense.

The food-production act of August 10, 1917, authorizes the Secretary of Agriculture to investigate and certify to shippers the condition as to soundness of fruits, vegetables, and other food products, when received at important central markets designated by the Secretary, under rules and regulations prescribed by him. These certificates are to be prima facie evidence in all courts of the truth of the statements they contain.

The Chief of the Bureau of Markets of the department is charged with the establishment and supervision of this service. For convenience in administration, the important central markets designated by the Secretary have been divided into six divisions or districts, with a supervising inspector responsible for each division.

Rules and regulations of the Secretary of Agriculture are given in Secretary's Circular No. 82. The inspection service organization is described, directions are given for making contracts with inspectors, written and telegraphic forms are discussed, and other information is furnished for shippers, receivers, and others in Bureau of Markets Service and Regulatory Announcements No. 28. These two publications, issued November 1, and other information concerning the service may be obtained from the Chief of the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

HOW TO CONSERVE AGRICULTURE'S ARTILLERY.

(1) Orders for new equipment and repair parts should be placed as soon as possible.

(2) To produce maximum results with a minimum of labor, new and modern machinery in large sizes should be used wherever possible.

(3) Serviceable equipment, not needed, should be sold or made available to others.

(4) Useless machinery should be returned to the channels of trade as junk.

(5) Thorough lubrication and proper care when in use will materially lengthen the period of service of farm equipment.

(6) More care should be given to protecting farm implements from the weather.

WOMEN FARMERS ORGANIZE.

Women who are farming find help and inspiration from women farmers' organizations. The first organization of this kind, so far as known, was founded in Missouri in 1911. Four years later the Iowa Woman Farmers' Club was organized at the Iowa State College of Agriculture. A large number of successful woman farmers are members of organizations encouraging interest in farming as a profession for women. The Bureau of Markets is cooperating with and furnishing information regarding such organizations.

Left-over breakfast cereals may be utilized by combining them with more highly flavored foods, examples of such combinations being oatmeal fish cakes, and croquettes or loaves of cereals and nuts. Cold cereals, when combined with custard and fruit, also form the basis of a nutritious and palatable dessert.

URGED TO BURN WOOD.

Larger Use of Firewood in Northern and Eastern States Recommended to Supplement Coal Supply.

If by partly substituting wood one-fourth of the coal burned by farmers and one-tenth of the coal burned in villages could be saved, the total would amount to nearly 3,000,000 tons, or between 65,000 and 70,000 carloads.

Farmers in Northern and Eastern States could make this saving possible by drawing on their woodlands for winter fuel supplies, according to a circular just issued by the United States Department of Agriculture. That it is entirely practicable in many cases to replace coal with wood in at least 17 States is the declaration of department officials. In these States—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, and Missouri—there is a rural population of about 20,000,000 which, it is estimated, uses annually about 18,000,000 tons of coal.

Use of Wood Will Help Relieve Freight Congestion.

A maximum price for coal has been fixed by the Government, says the statement. This does not mean, however, that the railroads will be able to transport all of the coal which the consumers may desire or want. Every freight car is performing a heavy duty, and the fewer the cars that are used for coal the greater will be the number available for carrying other war commodities. Manufacturers, of course, can not substitute wood for coal, nor can city people, because this would result in even greater railroad congestion. It is not likely that either in the South or the West the use of wood for fuel can be greatly increased, but farmers in the States mentioned frequently are situated so that they can profitably supply fuel from their woodlands not only for their own use but for the fuel market.

It is where team-hauled wood can be used in the place of railroad-hauled wood that the substitution should be made, the statement adds. Farmers who own woodlands and people in villages who can purchase wood from nearby farms are in the best position to reduce their consumption of coal. It is not expected that such substitution will be complete or universal; for many purposes coal is much more convenient. But for heating some kinds of buildings wood is the more convenient and cheaper fuel. This is particularly true in the case of churches, halls, summer cottages, and other buildings for which heat is required only occasionally.

Wood May Be Used in Coal Furnaces.

Furnaces are built specially for burning wood in 3 or 4 foot lengths. Short lengths, of course, can readily be burned in an ordinary coal furnace or in a box stove, though this is rather wasteful of fuel. Many furnace manufacturers, however, make a special wood grate for use in their furnaces. If a stove grate is too coarse for wood, a sheet-iron cover over a good part of the surface will make it suitable, or a few bricks can be used. Wood grates are sold which are made in two pieces and which may be inserted in the fire door and placed on top of the regular grate.

In the matter of heating value 1 standard cord of well-seasoned hickory, oak, beech, birch, hard maple, ash, elm, locust, or cherry is approximately equal to 1 ton of anthracite coal. It takes a cord and a half of soft maple and 2 cords of cedar, poplar, or basswood, however, to give the same amount of heat. One cord of mixed wood, well-seasoned, equals in heating value at least 1 ton of average grade bituminous or soft coal.

In the circular mentioned specialists of the department make suggestions as to the most economical methods of cutting cordwood and suggest community action regarding wood supplies in rural sections.

MORE SHEEP IN EAST.

Conference at Boston Recommends Extension of Sheep Husbandry in New England and New York.

At a sheep conference held in Boston November 2, called by the United States Department of Agriculture, at the Boston Chamber of Commerce, at which were represented wool dealers, manufacturers, farmers, trade associations, and Government and State officials, the following resolutions were passed:

Whereas the economic conditions now existing and the prospect for the future indicate that sheep husbandry will be a profitable and desirable industry and in view of the fact that New England and New York have large grazing areas eminently fitted for sheep husbandry; and

Whereas the great industrial communities of these sections afford a ready market for the meat and wool products of sheep; and

Whereas the restoration of sheep husbandry as a profitable industry will increase the wealth and production of lands now nonproductive or only partially so, and by so doing add to the general prosperity of all our citizens; be it

Resolved: First. That special efforts be made to establish the confidence of the farmers in sheep husbandry.

Second. That we solicit the cooperation and action of the United States Department of Agriculture, the extension services of the State colleges, and the State departments of agriculture for a constructive program of educational work.

Third. That community organizations of producers be formed to assist in the marketing of lambs and wool and to obtain a higher standard of breeding; and we recommend that such community associations of producers establish in sections of New England and New York, central exchanges for the better marketing of lambs and wool and breeding stock.

Fourth. That we urge the desirability of uniform dog laws for New England and New York, and all such laws should especially provide that dogs be restricted to the premises of the owner at all times between the hours of 6 p. m. and 7 a. m.

Fifth. That the several States be urged to provide the funds and facilities for the importation and distribution of breeding stock.

Sixth. That boys' and girls' sheep and lamb clubs be generally established.

Seventh. That banks and business organizations be urged to give liberal financial assistance to such clubs and to such farmers as need and are worthy of such assistance.

Eighth. That a committee be appointed consisting of two representatives from each New England State and New York to make a survey of conditions of the industry and to report on same and also to consider means to obtain uniform dog laws.

The resolutions were signed by the following committee:

Wilfred Wheeler, chairman, secretary Massachusetts Board of Agriculture, Boston, Mass.; C. L. Gold,[1] secretary Connecticut Sheep Breeders' Association, West Cornwall, Conn.; J. A. Sturdevant, United States Department of Agriculture sheep specialist, College of Agriculture, Burlington, Vt.; C. A. Call, industrial agent, New York, New Haven & Hartford Railroad, South Station, Boston, Mass.; William Price, wool buyer, Arlington Mills, Boston, Mass.; John A. Roberts,[2] commissioner of agriculture, Augusta, Me.; A. C. Bigelow, Philadelphia Wool & Textile Association, Philadelphia, Pa.; E. G. Ritzman, secretary New Hampshire Sheep Breeders' Association, Durham, N. H.; H. J. Baker, director, extension work, Storrs, Conn.; R. B. Cooley, professor of animal husbandry, Rhode Island College, Kingston, R. I.; H. H. Wing, professor of animal husbandry, College of Agriculture, Ithaca, N. Y.; C. R. White, representing Department of Agriculture, Albany, N. Y.

In summer the boar should be kept on pasture and provided with shelter, shade, and plenty of water.

[1] H. H. Healy, of Connecticut, represented Mr. Gold.
[2] W. B. Kendall, of Maine, represented Mr. Roberts.

CAUSE TO BE THANKFUL.

Georgia County Will Have Real Thanksgiving as Result of Bounteous Harvest.

It will be a real Thanksgiving in Campbell County, Ga. Cans, silos, cellars, and storehouses are holding the largest crops of food and feed ever grown by farmers in that county.

What with record crops and record prices for farm produce there will be real Thanksgivings in many other counties of this big, broad land November 29, but Campbell County is singled out here because it is an average southern community and because its agricultural agent covered so thoroughly the actual accomplishments of its farmers this year in a report which has just come to officials of the United States Department of Agriculture who are in charge of farm demonstration work. It requires several pages to tell the story, but that is because Campbell County, with the assistance of S. M. Cown, its agricultural agent, has accomplished a number of things. Says Mr. Cown:

"We certainly have grown a wonderful feed and food crop in this county this year and it is being saved and conserved. The farmers of this county are more conservative than I ever knew them, and I don't believe they will be wasteful with their products. They grew a great many food and feed crops this year as money crops to take the place of cotton, and a great deal of this material, especially potatoes, truck, and sorghum sirup, is being sold. We are making around 150,000 gallons of sorghum sirup in the county, which probably would be enough to supply the county for two years. It is being sold for 65 cents to $1 a gallon as fast as it is boiled.

Largest Sweet Potato Crop Ever Grown.

"We have made the largest sweet potato crop we ever grew and our farmers have been hauling it to Atlanta ever since the first of August, securing $1.25 to $2.50 a bushel for potatoes just as they were taken from the fields. The 'one-horse' farmer on my little place already has sold more than $200 worth from less than 2 acres and he will put up 75 bushels for home use. He has sold more than $100 worth of fresh beans and tomatoes, has canned all he needs, has corn enough for two years, and will get 8 bales of cotton. So you see we are getting things in better shape down here.

"I hope Georgia will not fall short of the wheat acreage desired by the Government. In my little county there is but little land that will produce wheat profitably, yet we expect that we will sow a pretty fair acreage. We lost our wheat and oat crops last winter completely from severe freezes, and the farmers seem to be a little doubtful about these crops. We will get in a smaller acreage to oats but a larger acreage to rye. If we get a fair yield of wheat from this season's sowing we will have 10 to 12 times as much wheat in this county next spring as we harvested last spring. We threshed only 1,500 bushels last spring and practically every bushel of that will be sown, in addition to much more which has been shipped in. Nearly every person living on his own land, and farming, will sow from 2 to 4 bushels and about one-third of the tenants will plant a small amount.

"The greatest shortage we have is the hog crop. We probably will have a very good supply of fattened hogs for killing this winter, but we can not begin to get a supply of pigs for next year's crop of meat.

Dairymen Have Full Silos.

"Most of our dairymen in this section have built silos and have them filled. They will buy less feed this winter than ever before. We are installing five feed mills in the county and we hope to be able to take care of most of the dry feedstuffs that can be ground up for stock. There is a large acreage in velvet beans and corn mixed, but the frosts of a few days ago did some damage to the beans; yet I believe that we will get a great additional crop of feed from them. Only 10 acres were planted to this crop last year.

"We have the largest crop of peas, already harvested, we have ever grown and the farmers are now having to thresh them so as to make room for other crops being harvested; and there are yet peas to pick. Many farmers already have sold a great many white peas at $4.80 a bushel, f. o. b. the station here. We came so near to planting corn all summer long that the frost did catch a good many plats just in the roasting ear stage.

"If we could just get coal, sugar, and flour down to right prices, I don't believe we could hold ourselves down. We are not going to have just scads of money, but we are going to be able to live at home this winter. Every store in the county sold out supplies of cans and jars during the canning season and had to reorder more several times. At one time I called on every store in the county and there was not a can or jar to be had. Now we have had to get more fruit jars to put sorghum sirup in and we are still at it."

FUR-BEARING ANIMALS.

Increased Demand for Fur Makes Trapping Restrictions and Law Enforcement Urgent.

Many changes were made during 1917 in the laws of the United States and Canada relating to trapping, open seasons, propagation, and bounties of fur-bearing animals. With only five exceptions, all the States held legislative sessions, and the enormous growth in the home manufacture and utilization of the furs made it of more than usual importance to enact additional trapping restrictions. A complete summary of these laws, together with comments, is published in Farmers' Bulletin 911, "Laws Relating to Fur-bearing Animals, 1917," of the United States Department of Agriculture.

During the year ended June 30, 1917, the foreign trade of the United States in raw and manufactured furs reached nearly, if not fully, the highest level of years preceding the war. The imports were valued at $21,553,375, while the exports amounted to $15,729,160, a sum exceeded only during the year 1913. The large export trade of the past year shows a production of peltries of unprecedented value in spite of the fact that the actual number of skins collected must have been less than in former years.

Arkansas, California, and Oklahoma were added to the States that provided protection for fur animals, each establishing a close season of 8 months. Trapping restrictions were changed and new features added in the laws of Connecticut, Indiana, Maine, Montana, New Hampshire, New York, Pennsylvania, South Dakota, and Wisconsin. Changes in seasons for trapping were also made in several other States and license fees for both resident and nonresident trappers were increased in a number of cases.

Trapping restrictions properly enforced and limiting the taking of fur-bearing animals to prescribed seasons will result not only in conserving the fur supply but in greatly increasing the quality and value of the annual catch. Trappers who are not familiar with the new laws in their territory should procure a copy of this bulletin, which will be supplied by the Department of Agriculture so long as the supply lasts.

CARE OF HORSES.

1. If farm horses are turned out together, remove their shoes.
2. Make the horses clean up roughage; avoid all possible waste in feeding. If leguminous roughages are fed, a little straw or corn stover will be beneficial.
3. Be careful of mares in foal. Avoid strains or other dangers.
4. Bear in mind the care received by the colt the first 18 months of his life will be a big factor in his worth at maturity.

Two things, therefore, are of the utmost importance—to bend every effort to increase production and to be equally alert and efficient in effecting savings.—Secretary of Agriculture, November 14.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

SUPPLEMENT
WEEKLY NEWS LETTER
UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., NOVEMBER 28, 1917. No. 17

Submarine Warfare and the Prussian Autocracy.

DAVID F. HOUSTON, Secretary of Agriculture.

WHY IS the United States at war with Germany? Why all this preparation, expense, and jeopardy of thousands of American lives? Are we fighting the battles of England, France, Italy, and Russia? Are we in the war to pull the chestnuts of the allies out of the fire? Are we fighting to help them recover lost territory or to acquire new possessions? Why do we fight at all? Why not employ peaceful means? Why not negotiate?

These questions are now being asked not infrequently, especially by German propagandists, by a few disloyal natives, and by some unintelligent and unpatriotic pacifists. Such people imagine that the time is opportune. They imagine that many Americans are astounded and resentful over the prospect of enormous expenditures, burdens of taxation, and sacrifices of life. They assume that there is, or will be, a reaction; that the people have short memories. They place reliance on the fact that the scene of conflict is remote, that our people can not appreciate that a defensive war can be waged by forces at a distance and that aggressive action may be in the highest degree defensive.

The main answer to these enemies of America within and without is simple. We are at war with Germany primarily to assert and to defend our rights, to make good our claim that we are a free nation, entitled to exercise rights long recognized by all the nations of the world, to exercise these rights without restraint or dictation from the Prussian autocracy and militarists, to have the kind of institutions we wish, and to live the kind of life we have determined to live. We are at war with Germany because Germany made war on us, sank our ships, and killed our citizens who were going about their proper business in places where they had a right to be, traveling as they had a right to travel. We either had to fight or to keep our citizens and ships from the seas around England, France, and Italy, or to have our ships sunk and our people killed.

We did not make this war. Germany made war on America and only after exercising great patience and enduring grievous wrongs did we formally declare this to be a fact. For over two years Germany had committed hostile acts against our sovereignty, destroying the property and lives of our citizens, acts which if committed by any smaller power or power nearer home would have led to a quick demand from our people for a belligerent response. By turns, as it suited Germany's needs, she was apologetic and contemptuous, conciliatory and dictatorial, full of promises and heedless of them, finally repudiating her most solemn obligations. In the meantime, while we were extending hospitality to her diplomats here and representing her abroad, she was carrying on a hostile propaganda within our own borders as well as abroad, promoting plots to destroy our plants, and attempting to sow dissension among our people. Recall the history of our negotiations with Germany, of our attempts to secure justice by diplomatic, peaceful means.

GERMANY'S PLEDGES TO AMERICA.

No. 1 (July 8, 1915).—"The Imperial Government repeats the assurances that American ships will not be hindered in the prosecution of legitimate shipping, and the lives of American citizens on neutral vessels shall not be placed in jeopardy."

No. 2 (September 1, 1915).—"Liners will not be sunk by our submarines without warning and without safety of the lives of noncombatants, provided that the liners do not try to escape or offer resistance."

No. 3 (October 5, 1915).—"The orders issued by His Majesty the Emperor to the commanders of the German submarines * * * have been made so stringent that the recurrence of incidents similar to the Arabic case is considered out of the question."

No. 4 (May 4, 1916).—"In accordance with the general practice of visit and search and destruction of merchant vessels recognized by international law, such vessels, both within and without the area declared as naval war zone, shall not be sunk without warning and without saving human lives, unless these ships attempt to escape or offer resistance."

ALL OF THEM RUTHLESSLY BROKEN.

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February 4, 1915, Germany declared that on and after February 18, 1915, she would regard the waters around Great Britain and Ireland, including the Channel, as a war zone and that "every enemy merchant ship would be destroyed without possibility of avoiding danger to crew and passengers." She pointed out that it would not always be possible to prevent neutral vessels from becoming victims of submarine attack. This action was without the color of justification in international law. Her only legitimate course was to declare and to effect a blockade and then, having done so, to intercept enemy vessels, discriminating between enemy and neutral vessels, enemy and neutral cargoes, in the case of neutral ships captured to take to prize courts only those carrying contraband, to sink vessels only in extraordinary circumstances, and in every case to give safety to crews and passengers and to preserve all papers of ships sunk or captured. Because of the allied fleets, it was impossible for Germany to do these things by the use of instruments heretofore employed. She could attempt them only with a new device—the submarine.

Germany's Specious Reasoning and Impertinent Demands.

Unquestionably new conditions of war had arisen and new means for waging it had come into existence; and just as it was recognized that fleets could not be held to a close blockade of ports, the old 3-mile blockade, so it was tacitly admitted that a submarine could not be expected to capture and take a ship into port, but might sink it, provided it practiced visit and search for purposes of discrimination, safeguarded the lives of crew and passengers and therefore gave ample warning to vessels and did not sink them in places or under conditions in which noncombatants could not secure safety. These things, under international law, it was necessary that Germany have her submarine commanders do or that she set aside international law and make necessity the only law, make law to suit herself and the desperate conditions into which she had brought herself by her own aggressive action.

The justification Germany attempted to give was that England had declined to respect in full the Declaration of London, had extended unnecessarily the list of contraband, had brought unfair pressure on neutrals, had declared the North Sea a seat of war, and was warring not only on the military forces of Germany but on the whole civilian population as well. She ignored the fact that England and her allies had fleets which, by the use of practices recognized by law, could maintain a blockade and which up to this time they have maintained without sinking ships or killing noncombatants. Germany could not do these things and had no right to whine because the allies could. She is certainly the last nation in the world to demand that only military forces be considered as involved in the war. For centuries Prussia had recognized clearly, more clearly than any other government, that a whole nation makes war, had proceeded early to organize herself on that basis and had gone out to extend and had repeatedly succeeded in extending her possessions by force against laws of right and morality. Her tender consideration for the civilian population and her view of the extent to which it should be exempted from the pressure and horrors of war are amply illustrated by her dealings in Belgium, northern France, Poland, Serbia, and on the high seas. Certainly Germany ought to have thought of England's fleet and the possibility of being cut off before she so recklessly embarked in war. She did not establish, and has not yet established, even an approximately effective blockade. She impertinently warned neutrals to keep their citizens off enemy merchant vessels and out of the war zone. Neutral citizens had, and have, a perfect right to travel on unarmed or even defensively armed enemy merchant vessels and to go where they please on the high seas. To have acceded to such insolent dictation from Germany would have amounted to a waiver of international law and rights and to the doing of an unneutral act against the allies, just as would compliance with the suggestion made by Germany on February 16 and frequently repeated, that neutrals cease to ship arms and munitions to the allies. Germany knew that neutrals had a perfect right to do this. She herself had exercised the same right more than once. She knew the dealers in this country would have filled munitions orders for her and that it was no fault of ours that she could not secure them. These things, too, she ought to have thought of before she provoked hostilities.

On February 11 this Government replied, contesting Germany's position and warning her that it would hold her to a strict accountability and take every necessary step to safeguard American lives and property and to secure a full enjoyment of their rights on the high seas.

INSOLENCE OF AUTOCRACY.

"In Germany's singular psychology, a mere declaration by her (the paper blockade) was to be given the same regard and weight as an established fact. * * *

"To have acceded to such insolent dictation from Germany (the warning to neutral citizens to stay off enemy merchant vessels and out of the war zone) would have amounted to a waiver of international law and rights and to the doing of an unneutral act against the allies."—Secretary of Agriculture.

Germany's Barbarous Warfare; United States Protests.

March 12, 1915, the allies issued a decree in which they declared that it was necessary to prevent merchandise from reaching Germany directly or through neutrals. They, however, asserted in taking this step that they would not follow Germany in her cruel and barbarous methods and would not in their intention endanger neutral vessels or the lives of noncombatants, that they would act in strict conformity with the laws of humanity. On March 28 a German submarine sank the *Falaba*, drowning an American citizen; on May 1 the *Gulflight*, drowning two American citizens; and on May 7 the *Lusitania*, drowning 114.

These acts were followed by a protest from this Government on May 13 in which a demand was made for disavowal of the action of the commander of the submarine in sinking the *Lusitania* and for reparation. This Government informed Germany that it would omit no word or act necessary to the performance of its sacred duty of maintaining the rights of the United States and of its citizens and of safeguarding their free exercise. On May 28 Germany replied, placing the responsibility for the sinking of the *Lusitania* on Great Britain and the British shipping company, asserting that the *Lusitania* was an auxiliary cruiser, which was false, that it was armed, which was equally false, and that the company permitted it to carry munitions, which it had a right to do. On the first of June, the German Government asserted that the attack on the *Gulflight* was an unfortunate accident, that the submarine commander was in no wise to blame, and expressed regret and stated that it would pay damages.

Germany's Pledge No. 1.

On the 9th of June the Government of the United States replied to Germany's *Lusitania* note, denying the statements as to the character of the *Lusitania* and as to her armament, asserting that it was sunk without warning, solemnly renewed its representations, and asked assurances that American ships and the lives of American citizens be not put in jeopardy. A month later Germany answered, saying that she was compelled to meet the British blockade, and that if her submarine commander had practiced visit and search the submarine would have been destroyed. She cynically added that in any event it was to have been expected that a mighty ship like the *Lusitania* would remain above the water long enough for its passengers to get off. The sinking of this ship, she hypocritically represented, revealed with horrible clearness to what jeopardy of human lives the manner of conducting war employed by her adversaries led. American ships, she promised, would not be hindered from their legitimate business and

lives on neutral vessels would not be jeopardized. This was promise number one. She decreed that neutral vessels must be properly marked, sufficient notice be given in advance and a guaranty be furnished that they would not carry contraband. She impudently informed us that she would agree to a proposal to increase by installments the number of vessels available for the passenger service by placing a reasonable number of neutral ships under the American flag. She informed us that American citizens did not need to travel to Europe on enemy vessels and that she was merely following England's example in declaring a part of the high seas an area of war. In her singular psychology, a mere declaration by her was to be given the same regard and weight as an established fact. With her lack of a sense of humor, she apparently could see no difference between an effective blockade maintained by England and a paper blockade announced by her. Accidents suffered by neutrals on enemy ships in such an area could not be judged differently from those suffered in a war zone on land. If this country could not secure a sufficient number of neutral ships, then the German Government would permit it to place four enemy vessels under its flag.

America's Protest Renewed.

Of course the Secretary of State answered that Germany's reply was unsatisfactory. It did not indicate how the principles of international law and humanity could be applied. It proposed a partial suspension of them, which, in effect, set them aside. This Government noted Germany's assurance, made once more, as to the freedom of the seas, that the character and cargoes of merchant vessels would be first determined and that lives of noncombatants would not be jeopardized. The United States demanded the disavowal of the act of the commander of the submarine, and reparation for injuries. It renewed the warning to Germany and advised her that the repetition of such an act against the rights of the United States affecting her citizens would be regarded as deliberately unfriendly.

The "Arabic" Sunk—Germany's Pledges Nos. 2 and 3.

Less than a month after this definite representation, Ambassador Page sent notice from London of the sinking of the *Arabic*, with a loss of three American lives. Five days later the German ambassador expressed the hope that the United States would await full information before acting and asserted that if American lives were lost it was not in accordance with the intention of the German Government. A week later he gave this assurance: "Liners will not be sunk by our submarines without warning and without safety of noncombatants, provided that they do not try to escape or offer resistance." This was promise number two. He added that this policy was decided upon by his Government before the *Arabic* was sunk. This was followed on September 7 by word from the German Government through Ambassador Gerard that the *Arabic* was sunk because it planned to attack the submarine, that the Government could not admit indemnity even if the commander was mistaken, and that if he was, the Government would be willing to submit the case to The Hague. On the 14th, after receiving the facts, Mr. Lansing wrote that the *Arabic* was not warned and did not try to ram the submarine. On October 5 Bernstoff replied that the German Government rules had been made so stringent that no repetition of the *Arabic* case was possible, admitted the validity of the evidence against the *Arabic's* attempt to ram the submarine, expressed regret at the occurrence, disavowed the act, and offered indemnity. This was promise number three.

Germany Prepares to Break Pledges.

On January 7, 1916, the German ambassador gave notice that German submarines in the Mediterranean would destroy any vessels, passenger as well as freight, but only after the safety of passengers and crew had been assured. Three months later Germany reopened the whole subject, rehashing the old arguments, and with obvious insincerity expressed the conviction that the United States would appreciate her point of view. Germany was evidently getting ready to break all her promises.

LIBERTY IN BALANCE.

"If Prussian militarism should be permitted to dominate, then the Anglo-Saxon fight for free institutions and liberty, persisting from Runnymede to Yorktown * * * would have been made in vain."—Secretary of Agriculture.

The "Sussex" Sunk—Germany's Frivolous Representations.

On March 27 the State Department sent Ambassador Gerard word that there was much evidence that the channel passenger steamer *Sussex* was sunk by a torpedo March 24 with 328 passengers on board. It asked for information concerning the following ships which with Americans on board were sunk: The *Englishman*, the *Manchester Guardian*, the *Eagle Point*, and the *Berwindale*, all sunk within a comparatively short time. The German Government replied on April 11, saying either that it did not have sufficient information to form an opinion, or that it was doubtful if the sinking was traceable to a submarine, or that the ship attempted to escape. It asserted that the *Sussex* was not torpedoed, and frivolously represented that the German commander made a sketch of a vessel torpedoed at the time in question and that this sketch did not look like the picture of the *Sussex* in the London Graphic. If, however, the commander was mistaken Germany would be willing to submit the case to The Hague. In other words, she made a false statement about the matter and agreed that if her statement was proven to be false she would arbitrate. Within a week this Government replied that the *Sussex* was torpedoed, that this was not an isolated case, that it was clear Germany had made indiscriminate destruction a deliberate policy, contrary to assurances given again and again, that the United States had been willing to wait till the course of Germany was susceptible of only one interpretation and that that time had been reached. It added: "Unless the Imperial German Government should now immediately declare in effect an abandonment of its recent methods of submarine warfare against passenger and freight carrying vessels the Government of the United States can have no choice but to sever diplomatic relations with the German Empire altogether." The next day the President addressed the Congress to the same effect.

Germany's Pledge No. 4.

On May 4 Germany replied that she was alive to the possibility that the *Sussex* was torpedoed, admitting in effect that she was caught in having made a false statement. Her commanders, she asserted, had orders to conduct warfare in accordance with visit and search, except in the case of enemy trade with enemy ships in the war zone. As to these she gave no assurance and claimed that she had never given any. She regretted that the United States did not extend the same sympathy to the German civilian population that it did to the victims of submarine warfare. However, she was willing to go the limit: "In accordance with the principles of law, German submarines will exercise visit and search, before sinking merchant vessels, recognized by law if they do not attempt to escape or resist." This was promise number four. The United States, however, must make England restore the freedom of the seas; that is, make her surrender her naval advantage. If she did not succeed then Germany would be facing a new situation. The United States replied expressing satisfaction that Germany had abandoned her indiscriminate destruction of merchant vessels and her expectation that there would be a scrupulous execution of the altered policy. She could not even discuss the suggestion that respect by Germany for the rights of the United States should depend on the conduct of any other Government affecting the rights of neutrals. Responsibility in such matters was absolute, not relative.

Germany's Political Maneuvering—Insincerity to Gain Time.

In the latter part of the year there were rumors that Germany would make suggestions concerning peace. It was suspected that her action would be insincere and would be intended to affect the public sentiment of neutrals, especially that of a portion of the population of the United States. On December 12 the German chancellor indicated that Germany might be willing to discuss peace. A few days later, the President sent substantially identical notes to the powers suggesting the desirability of a statement of terms on the basis of which they would be willing to discuss peace. This thought, of course, had long been in the President's mind and had no connection with the utterances of the German chancellor. Germany replied, declining to state terms and proposing direct negotiations. On January 13, 1917, England and France complied with the suggestion of the President and stated their terms.

Germany's Insincerity Made Clear.

Germany's insincerity was made clear. She was posing as a victor and wished to enter into peace negotiations only provided she was regarded as a victor and on the basis of her retention of conquered possessions. Previously her preparations, including her submarine fleet, had not been matured. She drew the negotiations out interminably to gain time. It was also now made obvious that her aim in proposing peace was to create a favorable attitude among certain parts of the American people, to throw the responsibility on the allies for prolonging the war, and to lay a predicate for her policy of submarine ruthlessness.

Germany False to All Solemn Pledges.

On January 31, on the pretext of acknowledging receipt of the President's address to the Senate, Germany expressed regret that the attitude of the allies, their lust for conquest, made peace impossible. This, she proclaimed, created a new situation, to which reference was made in a former note, and called for a decision. That decision was nothing less than to violate all her solemn pledges, to extend the submarine zone to Great Britain, France, and Italy, and to sink all ships. She was confident that this action would lead to a speedy termination of the war and would be understood by the United States. As a favor to this country she would permit it to send one steamer a week each way to a particular port, Falmouth. She fixed the day for arrival, Sunday, and the day for departure, Wednesday. The ship must be striped with three stripes each a meter wide, white and red alternating, and a guaranty must be given that it carry no contraband.

Diplomatic Relations Severed—Armed Neutrality.

The President promptly executed his warning to Germany, severing diplomatic relations with the German Empire on February 3. Immediately the President laid the matter before Congress and informed it of his action. American ships, however, remained in port as they arrived, as did those of other neutrals, and Germany was achieving her ends by menace. On the same day the *Houstónic*, an American steamer, was sunk, and on February 13 the *Lyman M. Law*. It was obvious that a further step must be taken or this country would be impotent and would be playing into the hands of the Prussian autocrats. Therefore, on February 26 the President asked Congress for authority to arm merchant vessels, and even then said that war, if it came, could come only by the act of Germany.

Germany's Barbarity Continued.

In the period from February 26 to April 2, six American ships were sunk with loss of many lives. Ships of other neutrals were destroyed and Americans were murdered. In this whole period, 226 American citizens, many of them women and children, were killed. Armed neutrality obviously was ineffective. The country was experiencing all the disadvantages of war "without either the rights or the effectiveness of belligerents." Only one alternative was left.

On April 2 the President appeared before Congress and recommended that a state of war be declared against the German Government. The Congress accepted the recommendation by a vote of 373 to 50 in the House of Representatives and 82 to 6 in the Senate.

United States' Choice—Submission or War.

If we had not accepted the challenge of the war-mad, desperate, dictatorial, contemptuous, hypocritical, and medieval Prussian militarists, we would have had to admit that we were not a free Nation, that we preferred peace at any price and were interested only in the fleshpots. This country either had to swallow its own words, abdicate its position as a free sovereign power, concede that it had no rights except those which Germany accorded it, hold its citizens and ships away from Europe, or to recognize the plain fact that Germany was acting in a hostile manner against it, fight to defend its rights, fight for humanity and the cause of civilization and free peoples everywhere, joining its power with the other free nations of the world to put an end to autocratic and brute force. There was one choice we could not make—we were incapable of making. We could not "choose the path of submission and suffer the most sacred rights of our Nation and our people to be ignored or violated."

Does not this review make it plain what it would mean to the world if Germany should win and if free, democratic, law-supporting nations like Great Britain and France were destroyed, if Europe should fall under the domination of Germany, headed by the Prussian military autocrats who know no right except might, who believe that small and peace-loving nations have no standing, and who attach no sanctity to a pledge, no matter how solemn? If Prussian militarism should be permitted to dominate, then the Anglo-Saxon fight for free institutions and liberty, persisting from Runnymede to Yorktown, its fight against the absolute rights of kings and barons, with its Magna Charta, its Bill of Rights, its Declaration of Independence, and the heroic fight of the French people for liberty, would have been made in vain. Has it not become patent that Prussia is the last great stronghold of feudal absolutism; that in fighting Prussian autocracy the modern nations are truly assisting the Germans, who are only in part conscious of their servitude, to gain what England, France, and America have had for generations; and that we are surely finally about to make the world safe for democracy and humanity?

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., DECEMBER 5, 1917. No. 18

PORK PRODUCTION FOR 1918.

Department of Agriculture Asks States to Increase Swine 5 to 50 Per Cent—Big Corn Crop Will Help.

The United States Department of Agriculture urges every farmer to do his personal share toward increasing pork production in 1918 by 15 per cent throughout the United States. The department first makes an exhibit of the slaughtering in 1916 and 1917, as follows:

The Swine Situation.

Slaughter of hogs under Federal inspection for fiscal years ending June 30:

1916	40,483,000
1917	40,211,000
Decrease	272,000

It is quite accurately estimated that the slaughter of hogs under Federal inspection represents 60 per cent of the total slaughter of the United States. On this basis we therefore find the following estimate for the total slaughter of the country for the two fiscal years in question:

1916	67,470,000
1917	67,020,000
Decrease	450,000

It should be pointed out that the actual decrease in the amount of pork produced is greater than the figures above would indicate. The hogs slaughtered during the fiscal year 1917 were lighter in weight than those marketed in the previous year. Further indication of the decrease in swine production is found in the report of the Bureau of Crop Estimates of the United States Department of Agriculture for stock hogs on farms September 1, as follows:

1916	65,645,000
1917	60,218,000
Decrease	5,427,000

Supply of Feedstuffs.

So much for the situation in regard to hog stocks. The increase in cereal production in the United States in 1917 is very much above the year 1916. The estimate of the corn crop on November 1 by the United States Department of Agriculture was 3,191,083,000 bushels; the December estimate of the 1916 crop by the same authority was 2,583,241,000 bushels. The five-year average for the years 1911–1915 was 2,754,164,000 bushels. The increase of the 1917 year over that of 1916 based on the November estimate is 607,842,000 bushels. The increase in 1917 over the five-year average is 436,919,000 bushels.

The Department of Agriculture estimates an excess of 20 per cent of the corn crop to be soft. This soft corn must be fed to live stock. However, in view of the heavy southern crop (which is in unusually good condition) and the fact that most of the corn crop is always fed to live stock, it is safe to say that there will still be an abundance of corn of a marketable quality to meet the usual market demands and insure reasonable prices for corn for feeders who must purchase grain. The following brief survey of the grain increase in the country should be considered:

CEREALS—INCREASE 1917 OVER 1916.

	Million bushels.
Corn	500 to 607
Oats	329
Barley	21
Rye	9
Total	859 to 966
Wheat shortage (compared with full crop)	300
Net increase	559 to 666

The very extensive campaign now in progress to replace as much wheat as possible with corn should be encouraged in every possible way.

The corn production of the country is above 30 bushels per capita. The normal wheat consumption is about 5.3 bushels per capita. It is apparent that if it were possible to replace the entire wheat consumption in the United States with corn or other grains, there still would remain a very large grain surplus. If we even assume the wheat shortage to be 300,000,000 bushels and subtract the entire amount from the minimum grain increase indicated above, we still should have a net grain increase of 556,000,000 bushels as a minimum, with the possibility that this amount will be over 600,000,000.

THE GRAIN SITUATION.

Stocks of old corn on farms November 1 are estimated at 34,745,000 bushels (1.3 per cent of the 1916 crop), compared with 87,908,000 bushels on hand a year ago and an average for five years of 100,523,000 bushels. Charge off this shortage against the 1917 crop and we still have a huge surplus, thus:

	Million bushels.
1917 grain surplus (minimum)	859
Less assumed wheat shortage	300
	559
Less difference in stocks of corn on farms	53
Net grain surplus	506
Or, less difference in hold-over corn, five-year average basis	493

It should be noted that the above calculations are based on an increase of 500,000,000 bushels in the 1917 corn crop over 1916. The Government estimate for November shows an increase of over 607,000,000 bushels. This estimate is very close to the actual yield. As a matter of fact, therefore, the December estimates will probably show an increase in the cereals available for feed of more than 950,000,000 bushels over 1916. The duty of American farmers to themselves and to the nation is clear. Live-stock production, especially hog raising, must be increased.

Live Stock Makes the Corn Crop Marketable.

Of a normal crop, 75 to 80 per cent is fed. When the crop is greatly increased above normal, a still greater proportion must be fed in order to make the remainder marketable at a profit. If there should be a serious shortage of hogs in the country in 1918, there will be more corn on hand than the market can absorb. The increase in the 1917 corn crop over that of 1916 is nearly 24 per cent.

The demands on the country for domestic consumption and for export require an increase of 15 per cent in pork production in 1918.

Increases in Pork Production, by States.

The following statement shows the requirements of each State which is asked to increase swine production next year:

Allotments by States to increase pork production 15 per cent in 1918 in the United States.

State.	Increase for 1918, per cent.	Interpretation: Where a farmer bred 20 sows in the fall of 1916, he should breed in the fall of 1917—
Missouri	50	30
Alabama	30	26
Kansas	25	25
Iowa	25	25
Illinois	20	24
Indiana	20	24
Nebraska	20	24
Arkansas	20	24
Mississippi	20	24
Ohio	15	23
Kentucky	15	23
Tennessee	15	23
South Carolina	15	23
South Dakota	10	22
Maryland	10	22
North Carolina	10	22
West Virginia	5	21

Farmers who do not breed as many as 20 sows can readily calculate the amount of increase which they should make in order to "do their bit." For example, if a farmer bred 4 sows in the fall of 1916 and breeds 5 in the fall of 1917, he contributes at the rate of a 25 per cent increase. If he bred 10 sows in 1916 and breeds 11 in 1917, he shares in a 10 per cent increase. If he bred only 2 sows in 1916 and breeds 3 in 1917, he contributes exactly his quota if he lives in Missouri.

USE OF GILTS.

The supply of breeding sows is undoubtedly short this fall. The breeding ranks will have to be filled to a considerable extent with gilts from the feed lots. These gilts will not produce quite so large litters as mature sows may be expected to produce. Therefore, farmers using gilts should breed slightly above the prescribed quotas in order to insure the requisite increase in spring pigs.

Attention should be given to the fact that this program has been carefully worked out according to the known requirements for 1918. If it is met in every detail, these requirements will be fulfilled. If the farmer breeders of the various States do not reach the quotas set forth for them, a more acute shortage of pork products will result than now prevails, extremely high prices for hams, bacon, and lard will prevail and only a few will benefit, the consumer suffering from extremely high prices and a shortage of necessary animal fats. On the other hand, if the program is carried out, a market is provided for about one-third of the 1917 corn crop, the demands on the country for pork products can be met without strain, prices to the producer will be remunerative, and those paid by the consumer should be reasonable. The country banker will indorse a systematic, business-like plan such as is herein outlined.

The Food Administration already has announced that prices of hogs will be kept at a point which will assure remunerative returns to producers so far as it has power to do so through its purchases for the Government and for the allies.

Relative Yields of Corn.

There are given below November estimates of the 1917 corn crop of certain States with which are compared the yields for these States in 1916.

SOUTHERN CORN CROP.

	Bushels.
1917	937,121,000
1916	819,022,000
Increase	118,099,000

This increase is approximately 20 per cent of the total increase of the Nation.

State.	1917 (000 omitted).	1916 (000 omitted).	Increase, 1917 (000 omitted).	Decrease, 1917 (000 omitted).
Maryland	30,576	27,300	3,276	.....
Virginia	71,369	60,990	10,379	.....
West Virginia	25,020	22,112	2,908	.....
North Carolina	66,120	53,650	12,470	.....
South Carolina	43,947	32,008	11,939	.....
Georgia	71,680	62,000	9,680	.....
Florida	14,370	12,600	1,770	.....
Kentucky	124,372	95,200	29,172	.....
Tennessee	109,200	84,500	24,700	.....
Alabama	74,704	46,688	28,016	.....
Mississippi	81,600	47,600	34,000	.....
Louisiana	42,246	44,814	.....	2,568
Texas	78,936	131,100	.....	52,164
Oklahoma	36,261	53,325	.....	17,064
Arkansas	66,720	45,135	21,585	.....
Total	937,121	819,022	189,895	71,796

Net increase, 118,099,000 bushels.

CORN CROP IN CERTAIN NORTHERN STATES.

State.	1917 (000 omitted).	1916 (000 omitted).	Increase 1917 (000 omitted).
Ohio	156,408	115,762	40,646
Indiana	203,436	174,658	28,778
Illinois	426,816	306,800	120,016
Iowa	412,772	366,825	45,947
Missouri	263,200	132,112	131,088
South Dakota	92,512	84,075	8,437
Nebraska	259,740	192,400	67,340
Kansas	128,436	69,500	58,936

The production of squabs from each pair of breeding pigeons varies from 1 or 2 to as high as 10 or 11 pairs a year, but an average of from 6 to 7 pairs is a fair estimate, although some breeders do better than this. Squabs usually sell at the highest price during cold weather, as pigeons do not breed as freely during winter as in the spring.

TO ADMIT TICKY CATTLE.

May Be Imported for Immediate Slaughter from Tick-Infested Countries.

For the purpose of increasing this country's meat supply, the act of August 30, 1890, which prohibits the importation of animals infested with or exposed to any disease, was amended by the act of August 10, 1917, known as the "food-production act," so as to authorize the Secretary of Agriculture, in his discretion and under such joint regulations as may be prescribed by the Secretary of Agriculture and the Secretary of the Treasury, to permit the admission for immediate slaughter at ports of entry of cattle infested with the splenetic-fever tick, from Mexico, Central and South America, and the islands of the Gulf of Mexico, and the Caribbean Sea. Pursuant to the purposes and provisions of this act, joint regulations have been issued, effective October 1, 1917, prescribing the conditions under which tick-infested cattle may be imported.

Domestic Cattle Protected from Diseases.

For the protection of domestic cattle from disease which might be brought in by the imported animals and to make certain that only wholesome meat shall be produced from that source, the requirements prescribed by the act and by the regulations governing the importation and slaughter of these cattle are very strict. Cattle may not be imported from any of the countries mentioned in which it shall be determined by the Secretary of Agriculture that foot-and-mouth disease exists; nor may cattle be imported which are affected with or have been exposed to any disease other than splenetic fever. They can be imported only into those parts of the United States below the southern cattle quarantine line at the ports of entry designated in the regulations, which are as follows: Galveston, Port Arthur, Texas City, New Orleans, Mobile, Pensacola, Jacksonville, Tampa, and Savannah.

Secretary's Permit Required.

A permit from the Secretary of Agriculture is required for each consignment of cattle offered for importation. The cattle must be slaughtered at an official slaughtering establishment at port of entry immediately after importation and in accordance with the Federal meat-inspection act and regulations. They are required to be inspected upon arrival at port of entry and, after unloading, to be held in quarantine for not less than five consecutive hours of daylight, during which time they shall be subjected to such inspection and tests as may be necessary. Movement of the cattle from the vessels to the

slaughterhouse at port of entry is required to be carefully supervised and all platforms, chutes, and conveyances used in handling the animals must be disinfected. The hides of the cattle, after slaughter, are required to be disinfected, and if cattle having anthrax are found their hides and carcasses must be destroyed.

The provisions of these regulations do not apply to tick-infested cattle imported from Mexico into Texas for purposes other than immediate slaughter at port of entry, such importations being governed by the amendment to the act of August 30, 1890, approved March 4, 1911, and the regulations thereunder.

SHELL SEED CORN BY HAND.

Examine Kernels from Each Ear and Reject Defective Grains.

Seed corn should always be shelled by hand, says the United States Department of Agriculture, which advises care in every step connected with seed selection.

After seed corn has been selected from the most productive stalks as they stand in the field in competition with other surrounding stalks, and stored in a dry place free from insects and rodents, the job is only half done. Shelling is one of the most important of the tasks.

Seed ears should first be nubbed and the kernels from tip and butt should be discarded from the seed supply. The small kernels from the tips are less productive than the other kernels on the ear; the blunt, thick, rounded kernels from the butts are just as productive as any of the rest, but because of their shape and size they do not plant uniformly when used in a corn planter with other kernels.

Shelling by Hand Profitable.

Shelling by hand takes more time and labor but is profitable. The mechanical corn sheller is likely to injure the germ tips of the individual grains, and to thus destroy or impair their power to germinate. No matter how large the required supply, says the department, it will still pay to shell it painstakingly by manual labor, because the greater the acreage to be planted, the greater the ultimate profit.

Each ear should be shelled separately into a shallow pan or box, and every blemished, misshapen, or worm-eaten kernel should be rejected. As the seed from each ear is found satisfactory and sound, and free from poor kernels, it is poured into the general supply, and another ear is shelled in the same way. It is much easier to pick out defective grains from a single layer in a small receptacle than from a large mingled quantity in a bushel measure or a bag.

APPLE SCALD.

Department Discovers That Occasional Renewal of Air in Storage Houses Is an Effective Remedy.

Apple scald of green and ripe fruit in storage can be entirely and easily prevented by an occasional renewal of the air of the storage room, according to a discovery of the United States Department of Agriculture, just reported by Charles Brooks and J. S. Cooley in the department's Journal of Agricultural Research. The basis of the discovery is the fact that apples are living organisms which breathe and, like other living things, have ventilation requirements which if not met lead to smothering.

Factors in the Production of the Disease.

The report states that accumulations of carbon dioxid (carbonic-acid gas) produced by the apples in storage, the lack of air movement in the storage rooms, and the depositing of moisture on the fruit, are all factors that may play a part in the production of scald. The relative importance of these factors is a matter for further investigation. The experiments indicate that high humidities may be maintained in storage without the development of scald, and prove conclusively that an occasional renewal of the air of the storage room will completely prevent the disease. This has been demonstrated in repeated experiments with several varieties of apples. Well-aerated apples remained free from scald, while in all cases poorly aerated ones, handled in the same way from the time they left the tree throughout storage, became badly scalded.

Scalded fruit was found to be more mealy and poorer in flavor than unscalded. Scald, in addition to rendering the fruit unsightly and reducing its market value, rendered the apples extremely susceptible to certain storage rots.

Avoid Smothering the Fruit.

Apples were apparently little harmed by several weeks' storage under poorly ventilated conditions if better aeration was provided before the fruit reached a certain critical period in its storage ripening. The maximum length of time that the fruit can remain in poorly ventilated storage without incipient injury, however, has not been determined for many varieties. Final recommendations in regard to the frequency of ventilation, therefore, can not be given as yet, but the investigators state that the fundamental fact that ventilation will prevent the disease has been established, and advise storage men to avoid taking chances of smothering the fruit.

Scald, it was found, increased with an increase in temperature from 41° to 68° F. Higher temperatures were unfavorable to the development of the disease and with certain varieties such as Grimes Golden 32° F. was more favorable to the development of the disease than 41° F.

Investigations of this disease by the department specialists are still going on, but the facts already obtained indicate the necessity of important changes in storage methods.

HOW TO MAKE SCRAPPLE.

Scrapple—a meat and corn-meal mush, greatly relished by many—puts to good use such meat as hog heads, hearts, and livers, and is a good use for corn meal also. The United States Department of Agriculture gives the following directions for preparing this dish, excellent for breakfast, luncheon, or dinner:

Ingredients.

Whole hog heads	pounds	10
Hog livers and hearts	do	2½
(A small quantity of beef can be used also if desired.)		
Corn meal (yellow or mixed)	pounds	6
Buckwheat or rye flour	do	½
Spices, as marjoram, sage, thyme, and pepper in proportion as desired, or omit those not desired	ounces	3
Salt	pounds	½
Liquid in which meat is boiled; use a quantity equal to the total weight of the combined solids.		

The proportion of the various ingredients may be varied to suit individual taste.

Directions for Preparing.

Clean the hog heads thoroughly, removing the eyes and ear tubes. Split the head lengthwise and remove the teeth and the soft bones in and near the nasal cavities. Place the hog heads and other meat into a large kettle or caldron with a liberal quantity of water and cook until the meat falls off the bones. Remove all of the meat and soft tissues from the bones and chop the meat by passing it through a meat grinder. Strain the cooking liquid to remove any small pieces of bone. Place the liquid back into the kettle. Heat to boiling point, at which time slowly add the meal and flour, and stir constantly to prevent the meal from forming into lumps and also to avoid scorching. Boil and stir until the mass becomes thick, and then add the salt, spices, and chopped meat. Boil 10 minutes, and while still hot pour the product into deep wet molds—bread pans will do. Pour 2 to 4 large spoonfuls of melted lard over the product in the pans. As soon as the product has cooled it is ready for use.

How to Serve.

The usual way of serving scrapple is to cut it into slices about one-half inch thick, dust the slices with flour or cracker dust, or dry corn meal, and fry until the outside is somewhat crisp. Serve while hot. Fried apples are good with fried scrapple.

LOOKING FORWARD IN FARMING OPERATIONS

Suggestions for Planning and Preparing for Increase in Next Year's Crop Production.

NORTH AND WEST.

The Office of Extension Work in the North and West, which has general charge in coordinating the extension activities in which the Department of Agriculture is cooperating with the agricultural colleges of the Northern and Western States, reports that farmers are directing their attention at this season to such subjects as are outlined below. The observations of the extension workers in these States indicate that farmers are practically unanimous in the belief that now is the time to give serious thinking to the task of planning and preparing for the big job of producing next year the greatest crops in American history.

A Farm Bureau Campaign.

In an effort to carry out the purpose of the act of Congress providing funds for cooperation in the employment of an agricultural agent in every agricultural county in the United States, the Department of Agriculture and the extension divisions of most of the agricultural colleges in the North and West are conducting a campaign to establish a farm bureau in every agricultural county. This campaign is carried on in frank recognition of the fact that the extension workers and specialists of the colleges and the department need the help of farmers in the great task of planning to make American agriculture more permanently prosperous while promoting the greatly increased production which the world's needs so urgently demand. Farmers are responding promptly and heartily to this rapidly developing attitude of the agricultural specialists. This was to be expected; for farming is really applied science. In a new and effective way the farm bureau is making the farmer and the man of science fellow workers.

How the Farm Bureau Works.

Every farm bureau is made up of volunteer farmers from all parts of a county. Officers and committees are chosen to represent all parts of the county and each of the special branches of farming practiced in the county. These officers and committees consult with each other and with the State county agent leader regarding general plans of work and the selection of a county agricultural agent. When a suitable man, who measures up to the high standard set by the colleges and the Department of Agriculture, has been found the appointment is made. The farm bureau and the county agent then make plans for carrying forward definite production or other projects in the county. When these plans have been approved after any necessary modification, the farm bureau serves as the local agency to push a work that has also the support of the agricultural college and the Department of Agriculture. The plan works; for the farmers know the local situation and the county agent serves as organizer of local forces and as agent to bring the services of State and national agencies to his people

Saving Seed Corn—An Illustration.

Farmers in the North and West are becoming aware of a serious seed-corn situation. The corn crop was large in spite of being unusually late, but the wet and freezing weather of October did much damage to corn in North Dakota, Minnesota, Iowa, and other corn-belt States. Late soft corn is peculiarly liable to damage from frost. Much corn in large areas is not fit for seed. In this emergency the farm bureau is the best possible agency to organize and put across a county seed-corn campaign. Already the campaigns are being organized and the areas are being located where good seed may be had. County agents and college and department specialists are helping as organizers.

Seed Corn and the Schools.

Nearly every country school in counties with well-organized farm bureaus can be made useful in a campaign to select and test seed corn for next year's crop. Teachers will quickly adopt the idea, for they recognize the teaching value of a project that makes the pupils realize that their school work has a value to the home farm, to the home county, and to the entire home country. Select seed corn; test seed corn; carefully store seed corn for next spring's planting; this is the program which farm bureaus can set before their members and can promote through the public schools. The extension workers will help with detailed plans and with information.

When the Corn Is in the Shock.

While the corn is still in the shock is a good time to select seed corn if a sufficient supply was not selected before. At any rate, the farmer with well-ripened corn in the shock is discovering a special reason for doing his husking as early as possible to prevent damage from severe cold, and the

(*Continued on page 6.*)

IN THE SOUTH.

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

December ought to be a busy month for Southern farmers; it should see the finishing up of the year's business for 1917 and preparation for the year's work of 1918.

The marketing of live stock, corn, velvet beans, sirup, peanuts, and other food and feed crops is an important matter. County agents and market agents ought to be active in assisting farmers along these lines. This is a good time to organize cooperative associations among farmers for marketing purposes. In the slack time of winter perfect the county organization by communities so that effective organizations to assist in next year's work will be in existence in every community.

In boll-weevil territory, clean up fields, ditch banks, and other hiding places of the weevil so that the smallest possible number of weevils will be wintered over.

Look After Farm Drainage.

December is a good month to look after the drainage on the farm. Ditching, tiling, and terracing of land to prevent erosion are important matters for this month. Clean the fields of stumps and rubbish and get the farm ready for the use of the best labor-saving implements next year.

See that the machinery, tools, etc., are housed and protected from the weather. Transportation will be seriously disturbed during the war and every economy in the use of tools should be exercised. During December repair machinery, tools, harness, and other equipment and put them in good shape for next year's field work.

Save the Manure.

Farmers who are just getting into livestock production should see that the stock is properly housed and should take steps to save all possible manure. Fertilizer is scarce, high in price, and hard to get for many reasons. The more manure saved to apply to the land the less need for fertilizer.

December is the month to finish hogs for market and for home killing and curing of the meat for use of the family. This important part of the work should be definitely planned so that when killing time comes everything will be ready.

If you are planning to use fertilizers or lime for next season, see that your orders

have been made in order that ample time may be had for their transportation to your station, and that a safe place is provided on the farm for its storage until needed.

December is a good month also to cut posts and other timber for building fences, sheds, etc. Consult your county agent about the advantages of creosoting all timber, especially fence posts, for preservation.

Be Sure of Supply of Good Seed.

Look to your supplies of planting seed for farm and garden in 1918. If you have seed on hand, examine it from time to time to see that it is not being injured. If you do not have the seed on hand, try to locate a supply and arrange for delivery at a proper time.

Begin planning your next year's operations. Remember that what the country needs in the South, especially in cotton territory, is a normal acreage in cotton, well tended, that we may have an abundant crop which the Nation needs, but likewise and equally as important, the production of this cotton should be supported by an ample supply of food and feed crops as heretofore. The disturbance of transportation, the heavy burdens upon railroads line, and the needs of the Nation as a whole should prompt Southern farmers to plan their next year's operations not unlike the operations of 1917, which were intended to produce a normal crop of cotton and an abundance of food. The South has wonderful prosperity in all sections not affected by the serious drought of 1917. A continuance of the policy of production of home supplies, keeping the cotton crop as a real money crop, will soon make the South rich and influential.

Consider an Increase in Hog Production.

Read carefully the Government's request to all farmers to increase the production of hogs. Ask your county agent to explain the need for increased production and the proportion allotted to your State. Plan your herd to produce the increase asked by the Government as a part of the war measures.

In all territory where cotton and tobacco are not the main cash crops, lay your plans for next year for the maximum production of food crops. It is a part of the national need.

When selling eggs to the country merchant or cash buyer, insist that the transaction be on a quality basis.

In general farming the size of the farm is a very important factor. The farm should be large enough to give the working force available to the farmer a maximum of productive labor through the year.

SAVE PORK COSTS.

Butchering on the Farm Advised to Reduce Cost of Meat for Home Consumption.

"Hog killing" on the farm, in spite of much encouragement given it in recent years, is not yet a general practice. The custom of buying meat from local stores or hucksters is increasing among farmers in spite of the fact that meat, especially pork, can be grown and cured at home for much less than the cost of purchased meat. These statements are made by animal husbandry specialists of the United States Department of Agriculture in a new publication of the department, Farmers' Bulletin 913, Killing Hogs and Curing Pork, which is intended to aid in popularizing farm butchering.

Home-Cured Meat Cheapest.

The cheapest meat a farmer can use is the product of his own farm, say the specialists. This is also true of the suburban or town farmer who fattens one or two hogs on kitchen and truck-garden wastes. Many farmers, it is said, will have their own meat supply for the first time this year. The publication just issued takes the farm butcher step by step through the processes of slaughtering, cutting up the carcass, lard making, curing, sausage making, and smoking. It tells also how to make a small ice house which may be used not only for meat but for other perishable products. Suggestions as to how farm butchering may be made a paying enterprise commercially are given, and it is declared that selling farm animals as meat is one of the best ways to market them.

Equipment Needed.

This is the equipment needed for slaughtering: An 8-inch straight sticking knife, a cutting knife, a 14-inch steel, a hog hook, a bell-shaped stick scraper, a gambrel, and a meat saw. More than one of each of these tools may be necessary if many hogs are to be handled and slaughtered to best advantage. A barrel makes a very convenient receptacle in which to scald the animal. It should be placed at an angle of about 45° at the end of a table or platform of proper height. The table and barrel should be securely fastened to prevent accident to the workmen during the scalding. A small block and tackle will reduce the labor of handling the animal.

Only hogs which are known to be healthy should be butchered. The quality of the meat is always impaired by fever or other derangements and there is always danger that disease may be transmitted to those who eat the meat of diseased hogs. Hogs can be killed for meat any time after 8 weeks, but the most profitable age at which to slaughter is 8 to 12 months. An animal in medium condition gaining rapidly in weight yields the best quality of pork. Hogs intended for slaughter should remain unfed for at least 24 hours or, better, 30 hours, and all the clean, fresh water they will drink should be provided. Temperature can not be controlled on the farm, but it is possible to kill when the weather is favorable. In the fall it is best to kill in the evening, allowing the carcass to cool overnight. In winter a day when the carcass can be thoroughly cooled without freezing should be selected.

DAMAGE BY MUSKRATS.

Though of Great Value as Source of Fur, Animal May Become Troublesome.

Although the muskrat is the most valuable fur animal in the United States, under some circumstances it becomes detrimental and is responsible for considerable damage to growing crops, irrigation ditches, milldams, etc. Where the animal is not troublesome, biologists of the United States Department of Agriculture suggest that it be protected and trapped for fur. Even where the animal has become somewhat of a pest, its numbers often may be kept down by trapping, while the sale of pelts makes such activities profitable. Often crops may be protected by the erection of wire-mesh fences between them and the marsh or pond where the animals live. Such fences should reach at least 6 inches beneath the surface of the ground to prevent the muskrat burrowing under.

Where the animals prove troublesome by causing breaks in embankments, dams, and in the sides of irrigation ditches, probably the most practical remedy is to employ a trapper and hunter to patrol the property both night and day. In narrow waterways barrel traps have proved efficient in catching large numbers of these animals.

Rat-Proof Construction Advised.

By erecting more permanent works, owners of embankments, dams, etc., may guard against injuries to their property by muskrats. A more general use of concrete, for example, has greatly minimized such troubles. The more liberal use of gravel or coarse sand for the surface of embankments has been found effective, since the animals will not burrow in soil that fills the hole as fast as they open it.

Destruction of muskrats, where this is desirable, as well as their protection, which is in most cases advisable, is discussed in a recent Farmers' Bulletin, No. 869, of the United States Department of Agriculture. Copies of the bulletin may be had free as long as the supply lasts by application to the United States Department of Agriculture, Washington, D. C.

NOT TO BE RAISED.

No Further Advance in National Forest Grazing Fees—Regulations Will Not Be Changed.

The Secretary of Agriculture announced November 20 that further advance of grazing fees on the National Forests will be deferred for the present. He also announced that no change will be made at this time in the existing regulations governing the issuance of grazing permits for more than one year. The reasons for this course have been set forth by Secretary Houston in an identical letter to the secretaries of the American National Live Stock Association and the National Woolgrowers' Association. The letter was as follows:

"The further study of the value of grazing privileges on lands within the different National Forests, referred to in my letter of February 1, 1917, has been made during the past summer and indicates that in general the fees charged this year are still below the real value of the forage. In the meantime, however, many important changes have taken place, due to the present war conditions, and the stockmen have been called upon to overcome many difficulties in order to keep up the country's supply of beef, mutton, hides, and wool, not only for our own use but also to help meet the needs of the allies.

Further Increase Deferred.

"In view of this situation, I have decided to defer action in connection with any further increase in grazing fees on the National Forests for the present. Whether the postponement will continue until the close of the war, I can not now determine, since I have no way of forecasting probable economic developments. For the time being the grazing fees now in force will be continued, with the exception of such minor changes as may seem advisable to adjust and correlate the fees between certain forests or groups of forests.

"In reference to the issuance of five or ten year permits which will not be subject to reduction during the period for which they are issued except for damage to the ranges or violation of their terms, I feel that this is also a matter which should be allowed to remain in abeyance. The demand for an increase in meat production and the necessity for stocking the forest ranges to the extreme limit of safety makes the issuance of such permits inadvisable, because with them in force forest officers would not be able to make many readjustments and allotments which the present situation with reference to meat production may require. This matter will be kept in mind, however, and it will receive appropriate consideration whenever the existing conditions seem to justify action along this line."

RAT-PROOF HOMES.

Rodents May Be Excluded from Dwelling Houses at Slight Expense.

In constructing dwelling houses the additional cost of making the foundations rat-proof is slight, compared with the advantages, says a recent Farmers' Bulletin of the United States Department of Agriculture, "House Rats and Mice." The cellar walls, says the bulletin, should have concrete footings, and the walls themselves should be laid in cement mortar. The cellar floor should be of medium rather than lean concrete. Even old cellars may be made rat-proof at comparatively small expense. Rat holes may be permanently closed with a mixture of cement, sand, and broken glass, or sharp bits of crockery or stone.

Wooden Dwellings May Be Protected.

On a foundation like the one described above, the walls of a wooden dwelling also may be made rat-proof. The space between the sheathing and lath, to the height of about a foot, should be filled with concrete. Rats can not then gain access to the walls, and can enter the dwelling only through doors or windows. Screening all basement and cellar windows with wire netting is a most necessary precaution.

In both city and country, wooden floors of sidewalks, areas, and porches are commonly laid upon timbers resting on the ground. Under such floors rats have a safe retreat from nearly all enemies. The conditions can be remedied in towns by municipal action requiring that these floors be replaced by others made of cement. Areas or walks made of brick are often undermined by rats and may become as objectionable as those of wood. Wooden floors of porches should always be well above the ground.

NORTH AND WEST.

(*Continued from page 4.*)

losses that are sure to result when corn is buried by winter snows. It promises to be profitable to make special efforts to get the corn husked and into dry and well-ventilated cribs before the severe weather of early winter. Farm bureau officers are now formulating plans to assure an ample supply of mature seed corn for next year, a supply ample for their own needs and as much more to sell in the spring to farmers in States or sections where the late season and the untimely freeze reduced the amount and quality of corn fit for planting.

The Farm-Fuel Problem.

The national shortage in coal is causing many a farmer to consider his own needs and his own home supply of fuel. There are wood lots that need thinning; orchards that need severe pruning; old fences that are worth more for firewood than anything else; and big trees that might well be cut down to make room for better young trees more appropriately placed for ornament and future use. Many an unprofitable old orchard will be cleared this winter in order to furnish fuel for the farm and make room for a profitable crop of beans or potatoes next season.

The Ewe and the Lamb.

Next spring's lamb crop will depend on the care and feed the ewes receive during the winter. Wise feeding is especially important because of the high prices of feed and sheep. The flock owner is fortunate who can use clover, alfalfa, cowpea, or soy-bean hay as the basis of the winter ration of his ewes. Corn stover, oat straw, silage, and roots are economical supplements. "Feed economically but well" is the advice offered by sheep specialists. The wise application of this good advice will depend on the farmer himself and such specialists as he may be able to consult.

The Useful Fanning Mill.

In many parts of the country there has been a tendency to let the fanning mill rest and rust and gather dust and to pay the mill or elevator for cleaning the grain, paying the bill by accepting a low price for the uncleaned wheat or oats or barley. Besides, the chickens lose the screenings. The present high price of grain should bring many a neglected fanning mill into profitable use. Incidentally, farmers will have profitable work for stormy days, and much cheap feed for chickens, pigs, and other animals.

DANGEROUS TO SHIP SOFT CORN.

The United States Department of Agriculture has been advised that a large amount of soft corn arriving at large grain markets in the Middle West is in danger of spoiling. Owing to congestion of terminals at these points, railroads are unable to deliver corn promptly to drying plants where it can receive proper care. This corn is especially liable to get out of condition while being held on trade during warm weather.

In order to prevent the spoilage of such soft corn it is recommended that until cold weather sets in farmers and country shippers delay the movement of such soft corn from the field unless conditions at the point to which the corn is shipped are such that the corn can be given quick attention for conditioning.

been found the appointment is made.

FOOD VALUE OF CORN.

Food Specialists Declare It Is Equal to Wheat and Is as Digestible—Some Corn-Meal Dishes.

The ability of corn to serve as a worthy substitute for wheat as a food is unquestioned, according to food specialists of the United States Department of Agriculture. Corn meal contains 1,613 calories of fuel value to the pound, as compared to 1,603 calories for wheat flour. A calorie, scientific as it may sound, is a true measure of food value. A batch of Johnnycake or corn bread contains more calories than a loaf of white bread of the same size.

Corn is practically as digestible as wheat flour, it is said, in spite of a common belief to the contrary. Experiments have shown that in a mixed diet 89 per cent of the protein and 99 per cent of the carbohydrates in corn-meal mush are digested. Of the corn-meal food energy, 97 per cent is available for the body.

Many palatable dishes can be prepared from corn meal. Recipes for some of these are here presented. First comes corn-meal mush, which forms the basis for a great many other corn dishes. This is the way to make it:

Corn-Meal Mush.

½ cup corn meal.
1½ cups water.
1 teaspoon salt.
Boil salted water; add corn meal gradually and cook one hour.

Mush can be served in a variety of ways. It can be served hot with milk; hot with sirup; hot with butter and sugar. It may be cooled, cut in slices, and fried, giving us the plain fried mush of the pioneers. Ground cooked meat may be added to the fried mush, or one-half cup of grated cheese, or one-half cup of tomato sauce and one chopped sweet green pepper.

It is difficult to make a yeast bread entirely out of corn meal, but combined with wheat flour a delicious bread can be made. The recipe is as follows:

Wheat and Corn Bread (4 loaves).

2¾ cups corn meal.
3½ cups cold water.
2 cakes compressed yeast.
2 cups lukewarm water.
3 tablespoons sugar.
1½ tablespoons salt.
2½ cups white flour.
3 tablespoons shortening.

Stir the corn meal into the cold water, bring to the boiling point and cook in double boiler 10 minutes. Cool; dissolve the compressed yeast cakes in the lukewarm water and add to corn-meal mush. Sift the sugar, salt and 1 cup of flour together, and stir into corn meal and yeast mixture. Beat thoroughly and set to rise at temperature between 80° and 88° F. It should be light within two hours. Beat it thoroughly, add melted shortening, if desired, and add the remainder of the flour; knead thoroughly until smooth and elastic. Set to rise as before. When double in bulk, mold into four loaves, place in slightly warmed and greased pans, cover and set to rise. When double in bulk bake in a steady oven (400° to 425° F.) for 45 to 50 minutes.

Corn Meal and Rice Griddle Cakes.

½ cup corn meal.
½ cup flour.
½ teaspoon soda.
1 teaspoon salt.
1 cup sour milk.
1 cup cold boiled rice.
2 eggs.

Mix the dry ingredients together; add sour milk and rice to beaten egg yolks; stir into the dry ingredients; fold in the beaten egg whites. Fry on hot griddle.

Corn Meal and Apple Pudding.

½ cup corn meal.
1 quart milk.
1 teaspoon salt.
1 teaspoon ginger.
½ cup molasses.
2 cups apples, cored and cut in eighths.

Scald the milk and add the corn meal; cook for 30 minutes and add the salt, ginger, and molasses. Pour in a buttered baking dish, bake for one hour, stirring occasionally; add the apples and bake one hour longer without stirring. Serve with cream or pudding sauce.

Polenta.

This dish, which is commonly used in Italy, differs little from "hasty pudding" or mush. Sometimes cheese is added during the cooking. Polenta is often reheated either with tomato sauce or a meat gravy left over from a meal or with a meat gravy made from a small amount of meat bought for the purpose. The dish is improved by sprinkling each layer of polenta with cheese. When the polenta is to be reheated in gravy, it is well to cut it into pieces in order to distribute the gravy well through the mass.

Fried Corn-Meal Mush.

The custom of packing mush into pans, cutting into slices, and frying it is too common to call for special mention here. A less common method used in Italy is to spread the cold mush out in thin layers on a board and cut into small blocks. These are then egged and crumbed and fried in a deep fat.

Corn Meal and Pumpkin Pone.

1 quart well-cooked pumpkin.
1 cup corn meal.
2 cups sweet milk.
1 tablespoonful salt.
1 cup sugar.
1 teaspoonful soda.

Stir the corn meal into the hot pumpkin; then add milk, salt, and sugar. Add enough more corn meal to make the mixture stiff enough so that it will hold its shape when dropped from a spoon. Then stir in soda (dissolved in boiling water). Bake an hour and a half or longer. The longer it bakes the sweeter it seems.

Cornstarch Recipes.

Coconut Blanc Mange.

¼ cup cornstarch.
¼ cup sugar.
¼ cup cold water.
2 cups milk.
2 eggs.
¾ cup shredded coconut or other ground nuts.
⅛ teaspoon vanilla.

Mix the cornstarch, sugar, and water together, add to the scalded milk; cook until thick, smooth, and glossy. Fold in the beaten egg whites and coconut and flavor with vanilla. Chill in molds wet in cold water. Serve with cream or custard made with yolks of eggs.

Apple Soufflé.

4 tart apples.
4 tablespoons cornstarch.
1 tablespoon flour.
¼ cup cold water.
¼ teaspoon salt.
1 cup boiling water.
1 tablespoon butter.
1 teaspoon lemon.
⅛ teaspoon nutmeg.
3 eggs.
Sugar.

Pare, core, and cook apples; rub through a coarse sieve. Blend the flour and cornstarch in cold water; add the butter and salt and cornstarch mixture to boiling water; cook until thick, smooth, and glossy; add apple pulp, nutmeg, lemon juice, and sugar to sweeten. Remove from fire and add beaten egg yolks. Fold in beaten whites. Bake in moderate oven until firm and smooth.

MAKE BEES COMFORTABLE.

Failure to insulate the bottom of the hive largely offsets the value of insulation around the hive in the outdoor wintering of bees, according to the Chief of the Bureau of Entomology of the United States Department of Agriculture. Experiments conducted with a number of insulated hives showed that much heat was lost from the unprotected hive bottom.

Abundant Insulation Not Harmful.

Beekeepers have repeatedly claimed that excessive insulation is even more detrimental in winter than insufficient insulation, because of the failure of the colony to warm up on bright days. To test this theory, a colony was packed in the fall with 16 inches of sawdust on all sides, top and bottom. Temperature records were made at frequent intervals every day throughout the winter and spring. The colony remained in excellent condition in every respect throughout the winter, being little affected by high winds, and after brood rearing began it built up with great rapidity. Then, to continue observations on the effect of insulation on the building up of the colony, the packing was allowed to remain all summer. Except for the impossibility of manipulating the colony, it remained in excellent condition. It seems clear, therefore, that beekeepers need not fear detrimental results from abundant insulation at any season of the year.

"WE MUST YIELD TO AND OBEY COMMON COUNSEL."

The President Appeals to Those Up Against the Real Thing to Exercise Self-Control.

The President, in addressing the American Federation of Labor Convention at Buffalo, N. Y., November 12, said in conclusion:

"I have been very much distressed, my fellow citizens, by some of the things that have happened recently. The mob spirit is displaying itself here and there in this country. I have no sympathy with what some men are saying, but I have no sympathy with the men who take their punishment into their own hands; and I want to say to every man who does join such a mob that I do not recognize him as worthy of the free institutions of the United States. There are some organizations in this country whose object is anarchy and the destruction of law, but I would not meet their efforts by making myself partner in destroying the law. I despise and hate their purposes as much as any man, but I respect the ancient processes of justice; and I would be too proud not to see them done justice, however wrong they are.

Must Obey Common Counsel.

"So I want to utter my earnest protest against any manifestation of the spirit of lawlessness anywhere or in any cause. Why, gentlemen, look what it means. We claim to be the greatest democratic people in the world, and democracy means first of all that we can govern ourselves. If our men have not self-control, then they are not capable of that great thing which we call democratic government. A man who takes the law into his own hands is not the right man to cooperate in any formation or development of law and institutions, and some of the processes by which the struggle between capital and labor is carried on are processes that come very near to taking the law into your own hands. I do not mean for a moment to compare it with what I have just been speaking of, but I want you to see that they are mere gradations in this manifestation of the unwillingness to cooperate, and that the fundamental lesson of the whole situation is that we must not only take common counsel, but that we must yield to and obey common counsel. Not all of the instrumentalities for this are at hand.

"I am hopeful that in the very near future new instrumentalities may be organized by which we can see to it that various things that are now going on ought not to go on. There are various processes of the dilution of labor and the unnecessary substitution of labor and the bidding in distant markets and unfairly upsetting the whole competition of labor which ought not to go on. I mean now on the part of employers, and we must interject into this some instrumentality of cooperation by which the fair thing will be done all around. I am hopeful that some such instrumentalities may be devised, but whether they are or not, we must use those that we have and upon every occasion where it is necessary have such an instrumentality originated upon that occasion.

"So, my fellow citizens, the reason I came away from Washington is that I sometimes get lonely down there. There are so many people in Washington who know things that are not so, and there are so few people who know anything about what the people of the United States are thinking about. I have to come away and get reminded of the rest of the country. I have to come away and talk to men who are up against the real thing, and say to them, 'I am with you if you are with me.' And the only test of being with me is not to think about me personally at all, but merely to think of me as the expression for the time being of the power and dignity and hope of the United States."

BLACK LOCUST.

Considerable Demand for This Wood by Wooden-Ship Industry—How to Distinguish from Honey Locust.

The revival of the wooden-ship industry has occasioned a considerable demand for black locust wood for "treenails," which are used to fasten the planking to the ribs of the ship. Black locust originally occurred only along the Appalachian Mountains and on the adjacent highlands, from Pennsylvania to Georgia, but it has spread until it now is found in merchantable sizes over a large area. The wood is very hard and close grained and is one of the most durable hard woods known, particularly when in contact with the soil or in other moist situations.

Similar to Honey Locust.

In supplying black-locust wood for shipbuilding purposes it is vary important, experts of the Forest Service say, to be able to distinguish it from that of the honey locust, a tree quite similar in many respects but whose wood has a coarser grain and is of inferior quality. The danger of selecting the wrong tree is increased by the fact that in some localities the names applied are exactly reversed, the honey locust being known exclusively as black locust and the true black locust being known as honey locust.

In the case of both trees the leaves are of the compound type, that is they are composed of a number of small leaflets arranged along the central leaf-stalk. The true black locust (which is known botanically as *Robinia pseudacacia*) has leaflets with smooth or entire margins. The leaves of the honey locust (*Gleditsia triananthus*), however, are shallow-toothed or scalloped along the edges, particularly toward the ends.

Distinguishing Characteristics.

The character of the thorns also furnish a dependable means of identification. The thorns of the black locust are short and arranged in pairs. Those of the honey locust, on the other hand, are frequently several inches in length, are often divided into three or more branches, and may be produced in great quantities. They often occur in dense clusters along the main trunk of the tree. The seed pods are also distinctive. Those of the honey locust are, as a rule, from 10 to 18 inches long, while the pods of the black locust are shorter and usually measure from 2 to 4 inches.

To the experienced woodsman all of these features, of course, are very familiar, as is also the characteristic appearance of the black locust caused by the attacks of an insect known as the locust borer, which causes a characteristic swelling of the branches.

The officials of the Forest Service at Washington will identify specimens without charge. They point out that samples of leaves, twigs, and fruits are always more dependable as a means of identification than the wood itself.

Small or dirty eggs should not be placed on the market. Use them at home.

Cereals and other food should be kept in glass jars or tin cans whenever possible. This will keep rats, mice, and vermin away.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., DECEMBER 12, 1917. No. 19

RESPONSE OF THE FARMERS.

Secretary Houston Reports Year's Gains on the Agricultural Front.

Farmers Have Responded Generously, But Large Production Does Not Justify Let-Down in Activities—How Agriculture Was Organized.

Reviewing the progress of the campaigns for increased production to meet war demands and conditions, David F. Houston, Secretary of Agriculture, in his annual report made public December 8, reports that the farmers of the Nation, patriotically responding to the appeals of agricultural and other agencies, have produced more than 5½ billion bushels of cereal food crops—exceeding by 1,000,000,000 bushels the five-year average for cereals—record crops of Irish potatoes and sweet potatoes, large crops of beans and sugar beets, and an unusually large crop of perishables. Authentic figures for meat, poultry, dairy products, and vegetable oils are not available for 1917, but rough estimates indicate that the quantity for the year is slightly greater than for either 1916 or 1915 and exceeds the five-year average by two or three billion pounds.

It must be borne in mind, however, the Secretary says, that the 1917 cereal crops are 199 million bushels below the yield of 1915; that the carry-over of cereals from last year was much below the normal; that the percentage of soft corn of the 1917 crop—which can not be used for food—is unusually high; and that, with the destruction of live stock in Europe and the great demands from there for meats and fats, with consequent greatly increased exports from the country, the supply of meats and fats will not be adequate to meet the domestic needs and those of the nations with which we are cooperating.

"That the farmers of the Nation have generously responded to the appeals for increased production, and that much has already been done to insure a large supply of foods and feedstuffs, justifies no let-down in their activities or in those of all agricultural agencies," the Secretary says. "On the contrary, even greater efforts must be put forth in the coming months if we are to meet satisfactorily the domestic demands and the needs of the nations with which we are associated in this struggle. There must be no breakdown on the farms, no failure of foods, feedstuffs, or clothing. I can not emphasize too strongly the urgent necessity of doing everything possible to bring about a still further increase in the production of all essential commodities, particularly of the staple crops and live stock.

The yields in 1917 of the major food crops are as follows, the Secretary reports, according to unrevised estimates: 3,191,000,000 bushels of corn, 659,797,000 of wheat, 1,580,000,000 of oats, 201,659,000 of barley, 56,000,000 of rye, 16,813,000 of buckwheat, 33,256,000 of rice, 73,380,000 of kafir, 439,686,000 of Irish potatoes, 84,727,000 of sweet potatoes, 15,957,000 of commercial beans, 42,606,000 of peaches, 11,419,000 of pears, 177,733,000 of apples, and 7,621,000 tons of sugar beets.

Wheat and Rye Outlook for 1918.

"The actual increase in the acreage of crops sown this fall can not be accurately determined at this time," the Secretary says. "There is every indication, however, that the farmers in the sections where fall grains can be profitably raised have patriotically responded to the Nation's call for more breadstuffs. Reports made to the Bureau of Crop Estimates in August, before the campaign for increased acreages was well under way, indicated an intention on the part of farmers to increase their sowing of winter wheat by about 10 per cent, and of rye by about 3 per cent. If these intentions are realized, it will result in the planting of 44,100,000 acres of wheat and about 4,340,000 acres of rye. Reports received since August are to the effect that the fall-sown acreage of these two crops has been increased in nearly every State, although the drought in the Southwestern States and in portions of Washington has made it impracticable fully to carry out the planting program. The official estimate of the acreage of winter wheat and rye will be issued on December 19 after the planting of winter grains is completed in the South. Similarly, it is too early to determine the

AMERICAN FARMERS HAVE FIGHTING SPIRIT.

"The spirit revealed by the farmers and the results of their efforts during the present year indicate that they recognize the responsibility resting upon them in this emergency. I am confident that they will patriotically continue to assume and to bear their full share of the country's burden. The farmers of the Nation have always shown their devotion to the cause of freedom and have not been slow to respond to their country's call for men and means to defend its rights. They will not submit to Germany's dictation. They will not permit her to impose illegal restrictions on their privilege of going freely to any part of the world where they have a legal right to go or of sending their products into the open markets of the world. They will realize that the dictum of Germany that this country should not send its ships at will to the ports of great nations of Europe was not only unwarranted and impertinent but also that, if it had been acquiesced in, it would have involved them very particularly in great direct financial loss and suffering. As the meaning of this struggle is more fully revealed, as it becomes increasingly clear that a contest is again being waged to determine whether the world shall be dominated by the will and policies of medieval despotisms or by those of free and enlightened modern States, and whether the mere right of might or the rule of law shall prevail in the world, and as it becomes more obvious that the surest way to force a righteous peace is to employ effectively all the resources of the Nation, the farmers will increasingly put forth their strength, send their sons to fight at the front, and see to it that neither this Nation nor those with which we are associated lack anything in the way of materials for food and clothing. It is incumbent upon them, as it is upon all other civilians, to work and to save, to seek no mere selfish advantage, and to reveal the same spirit of devotion and willingness to make sacrifices and to give all they are and have which animate the soldier in the trenches, if this struggle is to be brought to a satisfactory conclusion. Every facility that this department can command to assist them will be freely placed at their service."—Secretary Houston.

percentage of germination of seed actually sown, and therefore any prophecy at this time as to the actual harvest of winter wheat to be expected in 1918 would be merely a guess."

The Live-Stock Situation.

The report outlines the efforts of the Department of Agriculture to increase the meat supply and sums up the live-stock situation as follows:

"The number of milch cows and other cattle has shown an increase during the last four or five years, the estimate for the former for the present year being 23,906,000, as against 22,768,000 a year ago and 20,497,000 in 1913, before the European war began, while that for the cattle is 43,291,000, as against 40,849,000 a year ago and 36,030,000 in 1913. Unfortunately, the number of sheep continues to decline; the estimate for 1917 is only 46,059,000, as against 48,483,000 a year ago and 51,482,000 in 1913. It is estimated that the number of hogs, which during recent years has shown an upward tendency, decreased over 4,000,000, or from 67,453,000 to 62,747,000. However, it is greater than it was at the beginning of the European war. The number of hogs varies from year to year more widely than that of the larger meat animals. * * * The mere statement that the population has steadily increased in this country—the gain in the 10 years from 1908 to 1917 being 13,000,000—with an absolute decrease in the live stock for the same period, would sufficiently emphasize the seriousness of the situation if conditions were normal and the demands for meats and fats were not so urgent." There is a close relationship, the report says, between the production of live stock and the supply of feedstuffs, and the large production of these necessaries during the present season should conduce to more satisfactory conditions for the producers of live stock.

Hogs and Poultry.

Nation-wide campaigns to increase the meat supply are in progress, the report shows. As hogs and poultry yield the quickest returns, urgent efforts are being made to increase their production. Funds have been set aside from the appropriation made by the food production act to employ a force of 32 additional specialists to give their time to the task of increasing the number of hogs, 39 to encourage poultry raising, and 6 to assist producers of cattle. By the end of October field agents of the department had assisted in the transfer of 100,000 cattle from localities where there is a shortage of feed to areas where feedstuffs are relatively abundant. This work has resulted in the saving to the Nation of large numbers of animals.

Control of Disease and Pests.

Every effort has been and is being made to protect crops and live stock from diseases and pests. The force of experts dealing with these matters has been greatly increased and they are maintaining constant vigil and assisting in combating outbreaks in their early stages. Forty additional expert entomologists will be placed in the field to cooperate with the extension forces, and specialists familiar with seed treatment for the prevention of smuts of wheat, barley, oats, and rye, which alone cause losses of from 50 to 60 million dollars a year, have been assigned to prevention work in Oregon, Ohio, New York, Tennessee, Indiana, Illinois, Oklahoma, Texas, Washington, and California.

Under the food production act, the facilities of the Bureau of Animal Industry for dealing with live-stock diseases have been further extended. Forty-six workers have been added to the force combating cattle ticks in the South. Fifty-one per cent of the original infested territory has now been cleared of the tick. Hog cholera losses decreased 30 per cent during the last year, and 65 additional veterinarians have been assigned to the work of controlling the disease. In 12 States an inspector has been detailed to assist in combating tuberculosis of cattle and swine and of abortion of cattle, and it is proposed to increase the number to 19. Other specialists are engaged in the work of controlling blackleg of cattle and anthrax of domestic animals.

Mobilization of Agriculture.

Calling attention to the fact that the Nation was facing an unsatisfactory situation with respect to its supply of foodstuffs and feedstuffs when the existence of a state of war was declared, the Secretary outlines some of the efforts of the department and its cooperating agencies to increase the production of these commodities even before the entrance of the United States into the conflict. He then describes the steps taken to bring about more effective organization and closer coordination of the agricultural agencies of the Nation, beginning with the conference with the official agricultural representatives of the various States, which was held at St. Louis, Mo., on April 9 and 10. States east of the Rocky Mountains were represented at the meeting and a similar conference for the States west of the Rockies was held at Berkeley, Cal., on April 13.

Program Drawn Up in Two Days.

"It is noteworthy," the Secretary says, "that in two days the agricultural leaders of the country drew up a program, the wisdom of the essential features of which has not been successfully questioned and the substantial part of which has been embodied in the food production and the food control acts. The prompt and effective handling of the situation was made possible by reason of the fact that the American people, generations before, had wisely laid the foundations of many agricultural institutions and had increasingly liberally supported their agricultural agencies. The Nation was fortunate in having had in existence for many years, for the purpose of promoting scientific and practical agriculture, its Federal Department of Agriculture, and a department of agriculture and a land-grant college in each State, as well as great farmers' organizations."

Organization.

Pending action by Congress, the Federal Department of Agriculture, the State departments, the land-grant colleges, and other agencies actively devoted their attention to the immediate task in hand. Working in close cooperation with one another and with the farmers' organizations throughout the Nation, they immediately took steps to execute that part of the plan which had reference to a more perfect organization and coordination of the Nation's agricultural activities. The task was promptly undertaken of promoting in each State, in connection with the State council of safety, the organization of a small central division of food production and conservation composed of representatives of the State board of agriculture, of the land-grant college, of farmers' organizations, and of business agencies. It was suggested also that similar bodies should be provided for each local subdivision, and all were requested to devote their energies to the problem of increasing the production and conservation of food supplies and of promoting more orderly and economical marketing. Copies of the recommendations of the St. Louis conference and of those made to the Senate on April 18 were sent to the governor of each State. It was urged that attention be given immediately to the perfecting of agricultural organizations along the lines indicated.

Letter to the Senate.

In compliance with a resolution of the Senate, on April 18 the Secretary transmitted to it certain proposals for increasing the production, improving the distribution, and promoting the conservation of farm products and foods. The suggestions were based in large measure upon the program adopted at the St. Louis and Berkeley conferences. The Committee on Agriculture in each House soon afterwards took the matter in hand, held extensive hearings, and finally formulated two measures, the food production and food control acts, which were passed by the Congress and approved by the President on August 10.

Relation to Food Administration.

Discussing the inauguration of the Food Administration and explaining its relation

to the Department of Agriculture, Secretary Houston says:

"It was apparent that the food production and the food control acts dealt with very closely related matters, that effective cooperation between the Department of Agriculture and the Food Administration was essential, and that needless duplication of effort should be avoided. It was recognized that the relation between the two agencies was intimate and fundamental; that it was impossible completely to dissociate them and undesirable to do so. After a full conference a satisfactory working agreement was reached.

"In a broad way, the Food Administration has as its prime functions the control and regulation of the commercial distribution of foods and feedstuffs, that is, of products which have reached the markets and are in the channels of distribution or in the hands of consumers, their conservation by consumers, and the elimination of waste, through the employment of regular official as well as volunteer agencies.

"The Department of Agriculture continues to administer the laws placed under its jurisdiction and to direct its activities in reference to production. It also continues to make the investigations authorized by Congress and to furnish assistance to farmers and live-stock men in the marketing of their products; to stimulate organization among producers for the distribution of their products to the markets; and to promote the conservation of farm and animal products, especially of perishables through canning, drying, preserving, pickling, and the like. It retains its work in home economics, as provided by law, and cooperates in this field as heretofore with the agricultural colleges, through the Extension Service. It directs all these undertakings in greatly expanded form under the authority and with the funds provided by the food production act. In their promotion it utilizes its own official machinery and enlists the aid of volunteers.

"In the main, the Department of Agriculture deals with all the processes of farming and follows the products through the markets to the point where they are available and are in requisite form for actual consumption. It aids in these processes through investigation, advice, and demonstration; only in the case of certain products and processes has it regulatory authority. The Food Administration, however, has wide powers of regulation and direction of food materials and food products. Where the Food Administration through its powers can be of assistance to the Department of Agriculture in its field, it is at liberty freely to make suggestions, and, when necessary, to cooperate in execution; and the same relation obtains as to the department's participation in Food Administration matters in which it has a vital interest and toward the promotion of which it can be of assistance."

Demonstration Work Increased.

An appropriation of $4,348,400 was made by the food production act for the further development of the extension service of the department. By the end of October more than 1,600 emergency demonstration agents, men and women, had been appointed, making a total of approximately 5,000 cooperative extension workers, including the specialists performing extension work, employed through both State and Federal regular and emergency funds. This number will be further increased as soon as men and women with the requisite training and experience can be secured. There are now 2,000 county agents. About 1,300 State, district, county, and urban women home demonstration agents are employed. When the plans are fully developed, there will be at least one demonstration agent—possibly two, a man and a woman—in nearly every agricultural county in the Nation, and a woman in each of the large cities of the country to give advice regarding the production, conservation, and utilization of food products.

Home Gardening Stimulated.

"Special attention was directed to the importance of home gardens in all parts of the Nation," the report continues. * * * "This campaign, supported by the efforts of county agents, other field workers of the department, the staffs of the agricultural colleges, and private workers, stimulated, it is estimated, the planting of from 200 to 300 per cent more gardens than had ever before produced food in the United States in one season.

Saving Farm Products and Foods.

"Early in the summer all home-economics extension workers turned aside from their regular activities and aided in special campaigns for food conservation. Canning, drying, salting, and storing were emphasized in every State, and special stress was laid upon the importance of using perishable products in such a way that the home might support itself and make as little demand as possible on the transportation facilities for supplies from other sections of the country. Because of the large place that dairy products hold in food economics, efforts were made to conserve the supply by the elimination of waste and the more complete utilization of by-products.

Conservation of Perishables.

"When it became apparent that the truck farms, home gardens, and orchards of the Nation would produce a large surplus, the department, supplementing the activities of the extension forces and aided by a large number of emergency agents, conducted an intensive publicity campaign to promote the canning, preserving, pickling, and drying of surplus perishables and to stimulate the consumption of fresh fruits and vegetables. Mr. A. D. Lasker, of Chicago, and Mr. John Callan O'Laughlin, of Washington, D. C., volunteered to organize and supervise the work for the department. * * * The response to this campaign was immediate. Not only were perishables put up for winter use in greatly enlarged quantities, but the increased consumption, stimulated by the campaign, steadied the truck markets and undoubtedly prevented a considerable waste of valuable foodstuffs. In this way also the drain on the staple products was lessened. While there is no way of determining accurately how much food was put up in individual homes for later use, there is every reason to believe that thousands of families canned and preserved perishable products this year for the first time."

Marketing Activities.

The work of the Bureau of Markets has been greatly expanded to meet an unusual situation in marketing activities. The news services for fruits and vegetables and for live stock and meats were still further developed and were extended to include hay, grain, and seeds, and dairy and poultry products. Three general reporting services, one daily and two weekly, are conducted for perishables at 25 stations, as well as a local service for truck crops in certain cities. Reports of daily car-lot shipments and jobbing prices of fruits and vegetables as well as weekly summaries of car-lot shipments and a weekly market review are made by the bureau. Information on the carload movement of fruits and vegetables and of live stock, embracing returns from approximately 1,000 officials, are telegraphed daily by more than 400 railroads.

From representatives stationed at important transfer points during harvest periods, the Bureau of Markets secured telegraphic information on the car situation. These reports made it possible to place before the Commission on Car Service accurate information regarding the prospective movement of different crops and the need or cars. The bureau also, through available channels, has endeavored to secure close cooperation between carriers and producers, shippers and distributors, in the more efficient utilization of railroad equipment used in transporting food products.

The most difficult undertakings of the Bureau of Markets under the food production act are the war emergency food surveys, which are country wide in their scope. In this work the bureau is assisted by the Bureau of Crop Estimates and other branches of the department.

Food and Fertilizer Surveys.

A preliminary food survey as of August 31 last was planned and set in operation. This will be followed by one in more detail after the crops are gathered. The information

sought in the first survey covered 18 of the more important farm products and foods. This survey will show quantities of raw food products on the farms, stocks of food products near the consumption stage in manufacturing, storing, jobbing, wholesale, large retail, and other commercial establishments, stocks in retail houses, particularly in the small establishments, and supplies of food in the household, together with information as to current family consumption. The later survey will embrace many more items. An effort also is being made to secure accurate information regarding the supply of fertilizer materials on hand, the probable production and consumption, and other pertinent facts relating to this supply.

The Farm Labor Problem.

The report describes the efforts of the Departments of Agriculture and Labor and other agencies to assist in dealing with the farm-labor situation. The problem of the organization of labor remaining in agriculture, it is stated, is of the highest importance and it is essential that, if possible, it be so perfected that there may be produced in this emergency as much as was formerlyproduced by the whole number of laborers, and, if possible, a greater quantity.

Thirty-eight farm labor agents have been appointed to assist in the mobilization and organization of rural labor. Whether resort in future must be had to drastic action on the part of State and Federal authorities in order to meet the labor needs of the farmers will depend on the necessities of the case, the Secretary says. The new arrangement for the operation of the selective draft should remove many of the difficulties previously encountered.

Cooperation with Other Departments.

Many of the bureaus of the department have rendered and are rendering definite assistance to the War and Navy Departments and other branches of the Government in connection with war problems. The Bureau of Animal Industry is cooperating with the Navy Department in reinspection of meats and meat-food products at 27 naval stations, and 67 inspectors have been detailed for similar work at the various Army camps. Unusual precautions have been taken to see that the meat and meat-food products intended for the Army and Navy contain no harmful substances. Other department experts watch milk and butter supplies for the military forces, and inspect supplies of vegetables. The Office of Home Economics has studied emergency rations for the Army and Navy, as well as general questions relating to rationing for the Coast Guard Service. The Bureau of Chemistry, the Bureau of Entomology, the Forest Service, and the Weather Bureau are contributing definite assistance in their fields.

Federal Aid for Roads.

Reporting on the operation of the new Federal aid road act, the Secretary states that the most significant results thus far have been the enactment by a number of State legislatures of effective road laws. All the States have assented to the provisions of the act—42 by their legislatures and 6 by their governors. Under the provisions of the act 40 States have submitted 183 projects involving a total of approximately 1,730 miles. Of this number 139, embracing 1,182 miles, and calling for an estimated expenditure, including Federal, State, and local funds, of $7,947,114.50, have been approved. These projects involve Federal funds to the extent of $3,455,573.76 or 23.75 per cent of the total allotment, $14,550,000 to the various States for the fiscal years 1917 and 1918. Six projects covering 40 miles have been disapproved. Agreements have been entered into or are in the course of preparation in the case of 34 projects aggregating 197.74 miles and involving $990,600.84 of Federal funds and a total of $2,225,944.74.

Grain Standards Act.

Progress has been made in putting into effect the grain standards act, the Secretary reports, and the work is now on a very satisfactory basis. Thirty-five supervision districts with as many central headquarters have been fully equipped for the task. Forty-one supervisors, 10 assistant supervisors, 80 grain samplers, together with the necessary clerks and other employees, have been appointed and assigned to duty. Seven hundred and four applications for licenses to inspect corn and wheat have been received and 343 have been approved. The demand for inspection of grain by licensed inspectors is steadily increasing. Approximately 569 appeals have been taken to the Secretary of Agriculture under the provisions of the act through the various field offices. The supervision of inspection has not been confined to the determination of appeals and disputes. Ten thousand six hundred and fifty-six official samples of shelled corn have been secured and analyses made to determine their true grade. This was done in order to check the accuracy of inspection as carried on in various markets and inspection departments. From December 1, 1916, to May 30, 1917, 237,595 cars of shelled corn were inspected and graded by licensed inspectors according to the Federal standards.

The Secretary discusses in detail how the Department of Agriculture, through its various bureaus, is dealing with the many phases of agriculture in relation to the war and how the work is being extended under the provisions of the food production act. He tells how additional machinery has been developed, how the extension work has been expanded, how home gardening has been stimulated, how the marketing activities have been enlarged, how the emergency food and fertilizer surveys are being made, and also describes the measures taken to control diseases and pests of plants and animals, the special efforts made to increase the meat supply and the production of wheat and other cereals, the steps taken to deal with the farm-labor problem, the extension of the chemical investigations, the publication work, and other activities of the department. He reports the appearance in Texas of the pink bollworm, a highly destructive cotton pest, and indicates the steps taken by the department to control the insect. He also calls attention to the urgent need of proper legislation relating to the development of the water power of the Nation.

459 COW-TESTING ASSOCIATIONS.

That cooperative cow-testing associations are successful in this country is shown by the fact that since 1906, when the first association was organized in Michigan, the number has increased steadily to 459 associations in 40 States. On July 1, 1917, there were 11,720 herds, with a total of 211,966 cows being tested regularly in these associations. The total number of milch cows in the United States at that time was 23,372,200, of which 0.91 per cent were numbered in these organizations.

The first cow-testing association was organized in Newaygo County, Mich., January, 1906, is still in existence, and now has 30 herds with a total of 304 cows. The following year three new associations were organized in that State. In 1908 three were organized in Maine and one in New York. The next year five other States entered the list.

Wisconsin now leads in the number of associations, 81 being in operation in that State. Other leading States are Vermont with 47, New York with 43, Iowa and Ohio with 30 each, Minnesota with 26, and Pennsylvania with 24. During the year ended June 30, 1917, 95 new organizations were established.

WHITE GRUBS COMING IN 1918.

Large flights of May beetles, well known as the parents of the white grubs, destructive cereal and forage insects, occurred in June, 1917, throughout Illinois, Wisconsin, Michigan, Ohio, Pennsylvania, New York, New Jersey, and parts of other States. These flights mean, says a report of the Bureau of Entomology, United States Department of Agriculture, that throughout the area affected the white grubs will be destructively abundant in 1918, which will be the second year in the life of the resultant progeny.

CONGRATULATE STATES.

Secretary of Agriculture Addresses Congratulations on Lifting of Cattle Fever Tick Quarantine.

The Secretary of Agriculture, David F. Houston, has addressed letters of congratulation to governors of the nine Southern States sharing in the record-breaking releases of December 1 from quarantine for the cattle fever tick. He congratulates the people of the various areas on their success in eradicating the cattle tick and in freeing their territory from Federal quarantine restrictions on account of this insect enemy of the cattle industry of the South.

"With meat so important at this time," says the Secretary, "especially in provisioning our armed forces, and with milk so valuable a food for our population, it was an especial privilege to be able to promulgate the recent order declaring certain counties free from cattle ticks and lifting the Federal quarantine which has been in force since 1906."

The Secretary's letters list the counties freed from the tick and the quarantines, and continue:

Exceeds all Former Releases.

"The accomplishment of your citizens, working through their State and county inspectors and in cooperation with the United States Department of Agriculture, with that in other States, notably Mississippi, which now is entirely free from cattle tick, enables the department to exceed all former releases of territory and to declare free at this time a total area of 65,520 square miles. The total area in the South released from quarantine since 1906 is 379,312 square miles. There remains yet to be freed in your State 20,952 square miles, and in the South 340,253 square miles of infested area.

"Mississippi, by freeing itself of this pest, has driven a broad wedge of clean territory completely through the quarantine lines and thus has made a broad avenue of tick-free domain from the Gulf to the cattle markets of the North. I look for a rapid widening of this wedge eastward to the Atlantic and westward over the plains of Texas, until the tick is driven forever from our soil.

Tick Eradication an Economic Necessity.

"Eradication of the tick is an economic necessity for southern agriculture in normal times and, at this time, it is a patriotic duty. I am hopeful that the success of those counties which have dipped the tick from their lands will serve as a potent example to other communities to free their territories of the pest. The work of freeing the remainder of your State will be greatly facilitated by the State-wide tick eradication law which your legislature, like those of Mississippi and Louisiana, has enacted. The legislature of Texas also has recognized the importance of tick eradication in certain legislation, which, however, does not become compulsory in respect to its counties for some time to come. In all the States in the quarantined area, the people in many communities are determined that 1917 shall be the last year in which the tick takes its terrible toll and thus cheats their live-stock, dairying, and farming industries of the success which climate and soil would promise.

"To the people of your counties which have freed themselves from tick I need not emphasize the importance to a permanently successful agriculture of eradicating this pest and developing a farm industry of well-bred beef and dairy animals. They realize or soon will realize that the elimination of the tick increases the per capita value of cattle and in many communities reacts favorably on the values of farming lands.

What Freedom from Cattle Tick Means.

"Freedom from the cattle tick means to these counties that their cattle no longer will be killed by tick fever or be weakened by the persistent blood letting of this parasite. It means that a large part of their grain, forage, and pasturage, instead of being wasted in sustaining ticks, hereafter is to be turned into meat and milk to supply the urgent needs of our Nation. It means an increase in the yield of dairy cows and an important reduction in spring loss of cows and calves.

"With the deadly tick eradicated, owners of farms are safe in bringing in the best of breeding animals to improve their herds of beef and dairy cattle, and thus to introduce live stock into their farming systems to their direct profit and the maintenance of soil fertility. Farmers can develop their dairy industry upon a plane of profitable production.

"With the quarantine restrictions eliminated nothing now hampers the free interchange of their live stock between their farms and the northern feeding regions. Cattle shippers are free to sell their cattle on their merits in competition with all other free animals instead of being required to sell them for what they will bring in the detention pens for immediate slaughter.

Urged to Keep Ticks Out.

"Now that the tick has been eradicated from the areas indicated, I trust that the people of these counties diligently will see that it does not again become a blight on their agriculture. Through you I urge them to take all necessary precautionary measures and, in particular, to prevent the passage into their clean lands of a single tick-infested animal to reintroduce the cattle plague into their counties.

"The enterprise of the people of the freed counties in providing dipping vats, their persistence in dipping all their animals regularly, their determinations to let nothing interfere with the elimination of the destructive pest have yielded this result—as important to the Nation as to themselves. I trust that you will communicate to your State officials and to the residents of the several counties the earnest congratulations of the Federal Government.

"For the Department of Agriculture, and especially for the tick eradication agencies of its Bureau of Animal Industry, I would say that it has been a privilege to cooperate with your State and local agencies in this important undertaking."

RAT PROOFING BUILDINGS.

Basement Windows and Drains Must Be Screened or Rodents Will Get In.

So-called rat-proof buildings with unscreened basement windows, drain pipes which are left uncovered for hours at a time, and single wooden street or alley doors which are permitted to remain ajar are "rat proof" in name only, says a recent Farmers' Bulletin of the United States Department of Agriculture, "House Rats and Mice." When rats or mice once get into such buildings they entrench themselves behind furniture or stores and may be every bit as troublesome as in buildings not claimed to be rat proof.

To complete the rat proofing the basement windows should be screened, rules made and enforced to keep drains covered, and self-closing, metal-protected doors installed. When practicable, vestibules with inner doors should be built, since then one door will always be closed. The lower edge of outer doors to public buildings, especially markets, should be reinforced with light metal plates to prevent gnawing.

Old buildings, even though of frame construction, can be rat proofed, it is pointed out. Small buildings may be elevated so that there is at least 18 inches of clear space between the floor and the ground. Rats can not then find harboring places beneath them. Structures built close to the ground may be rat proofed by having the space between sheathing and laths filled with concrete from the ground level up about a foot, by having all rat holes and openings around pipes stopped with a mixture of cement and broken glass, and by other similar measures. The replacement of wooden floors of porches, areas, and sidewalks by floors made of cement is often an important measure.

If buildings in which quantities of foodstuffs are stored can not be made rat proof the materials may be protected by placing them in cages built of strong galvanized wire mesh.

POTATO CULL SILAGE.

Large Quantities of Waste May Be Thus Carried Through Winter for Cattle and Hogs.

Silage made from culled potatoes was found to be equivalent to corn silage as a feed for dairy cows and of value also as a hog feed, in preliminary tests recently conducted by the Bureaus of Chemistry and Animal Industry of the United States Department of Agriculture. As potato silage will keep as well as other silage, such utilization of culls and small potatoes would take care of a considerable annual waste, department specialists say, and would enable farmers to carry this feed through until a season of scarcity.

To Make Potato Silage.

Any receptacle that will contain the potato juice may be used for putting up the silage—barrel, vat, or an above-ground or pit silo To make the silage the potatoes are first washed, using large vats in which the potatoes are stirred by a homemade device, and then ground either by hand or by power. A hand grinder such as is used in making cider has been found to work satisfactorily for making small amounts of silage, while a power apple grater modified by substituting rows of blunt spikes for the grater knives is adapted to larger amounts.

After grinding, the potatoes are put at once into the water-tight receptacles and about 2 per cent of corn meal sprinkled in evenly throughout the mass. The use of the corn meal insures an acid fermentation which converts the ground potatoes into silage. The mixture then is tamped down, covered to a depth of several inches, preferably with fermented corn silage, or straw, cornstalks, or leaves, and the receptacle fitted with a board cover weighted with stones. This covering practically excludes air completely enough to prevent decomposition on the surface of the fermenting material. The weight of the stones should be sufficient to bring the juice just over the potatoes. The upper surface of the straw and the board covering should be kept dry if possible. With the covering thus carefully adjusted, losses of fermented potatoes may be almost entirely eliminated.

Feeding Tests.

In feeding tests of potato silage in comparison with corn silage, it was learned that the two kinds are of about equal value as a feed for dairy cows. The potato silage seemed to be as palatable as the best corn silage. With hogs, a lot fed approximately two-thirds of a grain ration mixture of 5 pounds corn meal, 4 pounds of middlings, and 1 pound of tankage, with potato silage equal in weight to the grain fed, gave the best results. The rate of gain, 1.4 pounds per head daily, was considered good. Only 352 pounds of grain were required for 100 pounds of gain. In this lot 1 ton of silage saved grain to the value of $25.22, figuring the corn meal at 3 cents a pound. Potato silage gives better results when fed to hogs 6 months old or over.

FRAUD WARNING.

This statement was made on November 19 by Herbert Hoover, United States Food Administrator:

"We have reports from various parts of the country of crooks, thieves, and confidence operators who are going from house to house purporting to be authorized by the Food Administration and other departments of the Government to collect or commandeer foodstuffs for the Government or the Army.

"I wish to say emphatically that no department of the Government has or will ever make such demands on householders, and that all such people are petty frauds and should be held for the police. The Government agencies are investigating various cases and information is sought of all such persons by this department."

TO PROTECT FOOD IN TRANSIT.

To reduce losses of foodstuffs in transit, the Bureau of Markets of the United States Department of Agriculture is studying methods of proper refrigeration and adequate heating for freight cars. The experience of potato shippers last winter when large quantities of a high-priced food crop were damaged by weather emphasizes the need of better methods of winter protection for cars loaded with perishable foodstuffs. Pending the adoption by the railroads of more efficient and economic equipment, efforts are being directed in cooperation with the carriers for utilizing to the best possible advantage this winter existing methods of heating.

COTTON WEATHER SERVICE.

The Weather Bureau service for the principal cotton States was reorganized in the spring of 1917 by the establishment of a regional center at New Orleans, says the annual report by the Chief of the Weather Bureau. In place of the district averages formerly telegraphed, a summary is being wired from the regional center to 26 points, there to be published in the form of daily bulletins.

The partial open-front poultry house is conceded to be the best type for most sections.

FEED GARBAGE TO HOGS.

Department of Agriculture Investigators Discuss Use of Waste in Increasing Food Supply.

"If garbage in good condition is fed with proper surroundings, there is no reason why pork from this source should not compare favorably with that from grain-fed hogs."

This is a conclusion reached in Circular No. 30, issued by the United States Department of Agriculture on the subject. Disposal of City Garbage by Feeding to Hogs. The circular is a preliminary report of an investigation conducted mainly in the neighborhood of large cities in the East, and it is hoped that the information, "although incomplete, will familiarize interested persons to the extent that they can see the possibilities in this business if it is intelligently managed."

At no time in American history has the elimination of waste been a more emphatic necessity than at present, the circular points out. If, entirely aside from effecting an economy in city management, the garbage produced in cities and towns can be used profitably in pork production, it is urged that every effort should be made to convert it to this purpose.

Garbage Feeding Costs Less.

Reports in the possession of the Department of Agriculture show that where table scraps form a part or all of the pig's diet, the gains costs considerably less than the gains made by their grain-fed competitors. On the other hand, while many people recognize in hog feeding the possibility of a cheaper disposal of garbage than by rendering, incinerating, dumping, etc., there is no reliable and complete source of information on the subject. The department began the study of this problem to determine whether there is an opportunity for a conservation of city waste by feeding it to hogs, thus giving back to the city a supply of food in the form of pork, and at the same time affording the city a more economical and efficient method of garbage disposal.

The report of a special commission on the "Collection and Disposal of Municipal Waste," Worcester, Mass., shows the cost per capita per annum for the collection and disposal of garbage in 17 cities of the United States. Seven of these cities feed their garbage to hogs; the other 10 dispose of it by other methods, such as incineration, reduction, burial, etc. The average cost per capita per annum for those feeding garbage is about $0.116, and the average cost for the other 10, $0.337, a saving of $0.221 per capita per annum. If these averages are confirmed by reports from a large number of cities,

it would seem that hogs as garbage converters could directly save the people in the cities of the United States enormous sums of money annually, and add a not inconsiderable amount to the meat supply of the Nation. While these averages can not be taken as absolute for the whole country, they are a strong indication of the possibilities.

Cooking of Garbage Discussed.

Approximately 15 to 20 pounds of garbage are required a day for a fattening hog of 125 to 200 pounds, depending upon the character of the garbage. It has been estimated that 4 tons of garbage are required to grow a pig to 200 pounds, the feeding period extending from 10 to 12 months. The circular says that information obtained thus far indicates that while cooking of garbage is not essential in summer if it is clean and fed promptly, the practice is advisable in winter, when the garbage contains a higher percentage of grease that can be removed in the cooking process. It is also pointed out that while it may be possible under the most careful and sanitary measures to feed raw garbage with freedom from disease and parasites, as a precautionary measure sterilization or cooking is advisable.

Garbage-fed hogs are found to be exceptionally free from lice and intestinal parasites, and when fed upon sterilized or cooked garbage they have been found to be as free from disease as other hogs bought on the open market.

Among subjects discussed in the circular is the proper equipment for collection and feeding of garbage.

ROTATIONS REDUCE ROOT ROT.

Root rot in cotton has been reduced by rotation of crops at the San Antonio Experiment Farm near San Antonio, Tex. A publication of the United States Department of Agriculture describing experiments at this farm in 1916 indicates clearly the value of rotation in the control of this disease in so far as it affects cotton.

On a plat that had been cropped continuously to cotton for eight years, 96.2 per cent of the plants had died from root rot by October 25, while on a plat in a three-year rotation of oats, cotton, and dwarf milo, only 2 per cent of the plants died from root rot. While experiments are to be continued and while the present knowledge of root rot and its control is not considered absolute, the result so far recommends rotation of crops and early preparation of land as an effective means of control.

Feed the cull potatoes to hogs. Cook the potatoes thoroughly and mix with corn meal, shorts, or bran. Skim milk is a good addition.

PUREBRED SIRES PAY.

Instances Illustrating the Benefits and Profits Resulting from Their Use.

If there is any place where theory and practice "link together" it is in the value of the purebred sire in live-stock improvement. Theory says "blood will tell," and practice proves it.

There is abundant testimony to show that a grade or mongrel sire will "back-fire" and the offspring prove a degraded or nondescript animal. On the other hand, evidence is not lacking that the offspring resulting from the service of the sound purebred sire will not only be a valuable addition to any stud, herd, or flock and a credit to the judgment and intelligence of the breeder but will bring a higher price on the market.

Many concrete instances can be given illustrating the benefits and profits resulting from the use of purebred sires. Two or three cases from widely separated districts will show the greater advantages resulting from wise and careful selection.

Bred Scrub Mares to Purebred Stallions.

There is the case of a man out west who began farming with a small number of scrub mares which he always bred to purebred stallions. The mares averaged about 1 200 pounds, and at prices prevailing to-day would barely bring $125 apiece. Some of the first colts sold at maturity at prices as high as $175, while fillies that were retained and in turn later bred to purebred draft stallions produced male and female colts, none of which sold for less than $100. Three mares sold at $225 each, and $450 was offered for one team. When it is remembered that this man started with scrub mares, it readily can be seen what the next crop of colts from purebred stallions will bring. In other words, this man is grading up by using good sires. His profits would have been still larger had he started with grade mares instead of scrubs. The results, however, show the value of the purebred male and his influence for improved live stock.

Profits from Purebred Mare.

Another instance is that of an Ohio farmer who several years ago purchased a purebred mare of one of the popular draft breeds, which has, in 11 years, produced 10 colts, 9 of which were raised. These colts increased this man's bank account to the extent of $4,930. The highest price received was $850 for a 4-year old mare, and the lowest $325 for an 11-month-old colt. Included in the total given are $300 which this man estimates as the value of a weaning filly which he is keeping.

In a northern State a good purebred stallion and a grade were standing in the same community, the owner of the purebred charging a fee of $15, while the grade stallion stood at a fee of $10. A wise farmer bred his mares to the higher-priced purebred, while a neighbor, feeling that the cheapest was the best, patronized the grade. This is what happened: Two fillies sired by the purebred stallion could have been sold at $750, but the owner would not let them go at that price, claiming they were worth more. The other farmer sold two mares by the grade stallion for $200. One striking thing about this instance is that the mares owned by both of these farmers were of practically the same type and breeding.

MOLESKINS VALUABLE.

Mole-trapping Industry Should Be Developed in This Country.

American moleskins, particularly those from the Pacific Northwest, are superior to the moleskins of Europe, which largely make up the world supply for industrial uses, according to biologists of the United States Department of Agriculture. It should be profitable, therefore, the biologists declare, to trap these animals for their pelts and so establish a new American fur industry. This is true particularly in the Northwest, where the animals are large and plentiful, and where it is often desirable to keep their numbers down to prevent injury to fields and lawns. Such a new industry should be especially desirable for farmers' boys as a side issue, it is pointed out.

The habits of American moles are described and methods of capturing them and treating and marketing their skins are outlined in a Farmers' Bulletin, "Trapping Moles and Utilizing Their Skins," recently issued by the United States Department of Agriculture. The publication also offers suggestions for the tanning of the pelts, so that they may be made locally into women's neckpieces, muffs, and coats. Copies of the bulletin may be had free so long as the supply lasts, on application to the United States Department of Agriculture, Washington, D. C.

ARSENIC INDUSTRY CONTROLLED.

With the idea of further conserving the Nation's food supply by protecting it from insect ravages, President Wilson, in a proclamation dated November 15, has placed the arsenic industry of the United States under direction of the Food Administration. The President's action comes in answer to a threatened shortage in the supply of arsenical insecticides, which are the farmer's chief protection for his crops against the onslaught of "biting insects."

FEDERAL GAME LAWS.

Lacey Act and Federal Migratory-Bird Law Being Generally Observed by Hunters.

Violations of the Lacey Act, relating to interstate shipments of game, are becoming fewer each season, there being only 45 cases reported for the fiscal year ending June 30, 1917. The majority of cases were for the interstate shipment of wild birds, game animals, and hides of fur-bearing animals illegally killed or shipped. Four cases were for knowingly receiving game illegally shipped in interstate commerce. In one of these cases a fine of $400 and costs, the maximum penalty of $200 on each of two counts, was imposed. Thirty-two cases were disposed of by the courts, resulting in 29 convictions and the imposition of fines and court costs amounting to $1,522, and in one a jail sentence of 30 days. Twenty-two of the cases reported were for illegal shipment of quail from a number of the Middle Western States. Louisiana and South Carolina are now the only States that permit hunting for market.

Interstate Shipments Illegal.

That part of the Lacey Act covering interstate commerce in game makes it unlawful to ship or transport in interstate commerce any wild animals or birds killed or shipped in violation of the State, Territory, or District laws. This includes the interstate shipment of skins or pelts of wild animals illegally taken in any State. Packages containing furs, when shipped in interstate commerce, must be plainly marked so that the name and address of the shipper and the nature of the contents may be readily ascertained by inspection of the outside of the package.

Bird Law Observed.

The Federal migratory-bird law, under which seasons for the adequate protection of migratory birds are prescribed, is now generally observed. Reports received from game and fish commissioners and others give evidence of a very marked increase in the number of wild waterfowl and shore birds in most of the States since the law became effective, March 4, 1913, and that wild fowl have become unusually tame in spring and thousands are breeding in localities where they have not nested for many years. The consensus of opinion attributes these greatly improved conditions to a general observance of the Federal regulations abolishing spring shooting.

States Cooperate.

For administrative purposes the United States is divided into 13 districts, now under the supervision of 16 migratory-bird law inspectors, who, with the assistance of 186 Federal wardens, enforce the regulations in connection with State officials. During the year 208 cases of violations were reported, which makes a total of 859 cases to date. The violations reported by no means approximate the number that have occurred, as it is often impossible under the law to secure evidence sufficient to convict.

AUDITING ASSOCIATIONS.

Farmers' Business Organizations Combine for More Efficient Methods.

Auditing associations, having for their purpose the efficient periodic auditing and reduction of the expense of this service among farmers' business associations, have been organized in North Dakota and Kansas. The Bureau of Markets, of the United States Department of Agriculture, has assisted these associations with a suggested form of by-laws and in other ways is aiding in the work of organizing. The membership of the auding association in Kansas is composed of some 225 farmers' business organizations. It is believed that these associations, if properly conducted, may serve not only as a committee of audit but also as a centralized business reference bureau wherein the managers of the various enterprises comprising the membership may receive valuable advice and assistance and secure comparative statistics in similar lines of operation.

INCREASE SUPPLY OF SEED HEMP.

In response to requests of hemp growers the United States Department of Agriculture is making an effort to provide adequate supplies of good seed of this fiber crop. Under the encouragement given by the department the crop of hemp seed last year was 45,000 bushels—the largest produced in the United States since 1859. A very large proportion of this was from improved strains developed by the Bureau of Plant Industry of the department in the hemp-seed selection plats at Arlington and Yarrow Experiment Farms. Small packets of improved seeds have been sent each spring during the last four years to hemp-seed growers in Kentucky in order to increase the supplies. One pound of seed grown under favorable conditions may yield enough seed to sow 20 acres broadcast for fiber. The superiority of the department's strains is recognized and they are used for planting nearly all fields of seed hemp.

The mixing of warm, fresh cream with cold cream is never advisable, as the whole mass is warmed thereby, and souring will follow more quickly.

IMPURE FOODS SEIZED.

Department Giving Special Attention to Traffic in Spoiled or Polluted Foods.

The prevention of the sale of polluted or spoiled food entering into interstate commerce received special attention from the Bureau of Chemistry of the United States Department of Agriculture during the past year.

Decomposed Food Seized.

A number of shipments of decomposed canned goods returned to packers or jobbers for the adjustment of claims were seized, evidence having been secured that the consignees had taken steps to dispose of the seized goods or previous similar consignments for food purposes. This practice of returning goods for the adjustment of claims for spoilage has led to certain abuses, which have been taken up with the industry in the hope that through cooperative action conditions may be controlled more effectively than in the past. Steps were taken to prevent the shipment of decomposed sardines, commonly called "belly-blown." The canning of decomposed navy beans has been suppressed very largely. The interstate shipment of oysters from polluted waters has practically ceased, and the practice of adulterating oysters and scallops with water has been checked in the main. Cooperation with State and municipal officials to control the shipment of bad eggs has been continued, and it is reported that the quality of the eggs reaching the large cities is much improved.

Cooperation with State Officials.

The cooperation with local authorities begun last year in Texas to prevent the contamination of springs from which water is shipped in interstate commerce was this year extended to Arkansas, Wisconsin, and Missouri, with satisfactory results.

With the aid of State feed officials, the inspection of low-protein meal and cake made from delinted cotton seed, reported last year, was repeated and extended to the Pacific coast. This year some of the mills placed fans above the separating screens, thus removing a considerable amount of hulls and linty matter. In many cases the labeling of the meal was changed to correspond with its true composition. Action was also taken against linseed meal adulterated with screenings and oats with weed seeds added to increase the weight per bushel.

Pantry shelves should be washed clean and then dried. The undue use of water should be avoided, as moisture encourages molding.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., DECEMBER 19, 1917. No. 20

ADDRESS OF THE PRESIDENT.

Delivered at a Joint Session of the Two Houses of Congress, December 4, 1917.

GENTLEMEN OF THE CONGRESS: Eight months have elapsed since I last had the honor of addressing you. They have been months crowded with events of immense and grave significance for us. I shall not undertake to retail or even to summarize those events. The practical particulars of the part we have played in them will be laid before you in the reports of the executive departments. I shall discuss only our present outlook upon these vast affairs, our present duties, and the immediate means of accomplishing the objects we shall hold always in view.

I shall not go back to debate the causes of the war. The intolerable wrongs done and planned against us by the sinister masters of Germany have long since become too grossly obvious and odious to every true American to need to be rehearsed. But I shall ask you to consider again and with a very grave scrutiny our objectives and the measures by which we mean to attain them; for the purpose of discussion here in this place is action, and our action must move straight toward definite ends. Our object is, of course, to win the war; and we shall not slacken or suffer ourselves to be diverted until it is won. But it is worth while asking and answering the question, When shall we consider the war won?

From one point of view it is not necessary to broach this fundamental matter. I do not doubt that the American people know what the war is about and what sort of an outcome they will regard as a realization of their purpose in it. As a nation we are united in spirit and intention. I pay little heed to those who tell me otherwise. I hear the voices of dissent—who does not? I hear the criticism and the clamor of the noisily thoughtless and troublesome. I also see men here and there fling themselves in impotent disloyalty against the calm, indomitable power of the Nation. I hear men debate peace who understand neither its nature nor the way in which we may attain it with uplifted eyes and unbroken spirits. But I know that none of these speaks for the Nation. They do not touch the heart of anything. They may safely be left to strut their uneasy hour and be forgotten.

But from another point of view I believe that it is necessary to say plainly what we here at the seat of action consider the war to be for and what part we mean to play in the settlement of its searching issues. We are the spokesmen of the American people and they have a right to know whether their purpose is ours. They desire peace by the overcoming of evil, by the defeat once for all of the sinister forces that interrupt peace and render it impossible, and they wish to know how closely our thought runs with theirs and what action we propose. They are impatient with those who desire peace by any sort of compromise—deeply and indignantly impatient—but they will be equally impatient with us if we do not make it plain to them what our objectives are and what we are planning for in seeking to make conquest of peace by arms.

I believe that I speak for them when I say two things: First, that this intolerable Thing of which the masters of Germany have shown us the ugly face, this menace of combined intrigue and force which we now see so clearly as the German power, a Thing without conscience or honor or capacity for covenanted peace, must be crushed and, if it be not utterly brought to an end, at least shut out from the friendly intercourse of the nations; and, second, that when this Thing and its power are indeed defeated and the time comes that we can discuss peace—when the German people have spokesmen whose word we can believe and when those spokesmen are ready in the name of their people to accept the common judgment of the nations as to what shall henceforth be the bases of law and of covenant for the life of the world—we shall be willing and glad to pay the full price for peace, and pay it ungrudgingly. We know what that price will be. It will be full, impartial justice—justice done at every point and to every nation that the final settlement must affect, our enemies as well as our friends.

You catch, with me, the voices of humanity that are in the air. They grow daily more audible, more articulate, more persuasive, and they come from the hearts of men everywhere. They insist that the war shall not end in vindictive action of any kind; that no nation or people shall be robbed or punished because the irresponsible rulers of a single country have themselves done deep and abominable wrong. It is this thought that has been expressed in the formula "No annexations, no contributions, no punitive indemnities." Just because this crude formula expresses the instinctive judgment as to the right of plain men everywhere it has been made diligent use of by the masters of German intrigue to lead the people of Russia astray—and the people of every other country their agents could reach, in order that a premature peace might be brought about before autocracy has been taught its final and convincing lesson, and the people of the world put in control of their own destinies.

But the fact that a wrong use has been made of a just idea is no reason why a right use should not be made of it. It ought to be brought under the patronage of its real friends. Let it be said again that autocracy must first be shown the utter futility of its claims to power or leadership in the modern world. It is impossible to apply any standard of justice so long as such forces are unchecked and undefeated as the present masters of Germany command. Not until that has been done can Right be set up as arbiter and peacemaker among the nations. But when that has been done—as, God willing, it assuredly will be—we shall at last be free to do an unprecedented thing, and this is the time to avow our purpose to do it. We shall be free to base peace on generosity and justice, to the exclusion of all selfish claims to advantage even on the part of the victors.

Let there be no misunderstanding. Our present and immediate task is to win the war, and nothing shall turn us aside from it until it is accomplished. Every power and resource we possess, whether of men, of money, or of materials, is being devoted and will continue to be devoted to that purpose until it is achieved. Those who desire to bring peace about before that purpose is achieved I counsel to carry their advice elsewhere. We will not entertain it. We shall regard the war as won only when the German people say to us, through properly

accredited representatives, that they are ready to agree to a settlement based upon justice and the reparation of the wrongs their rulers have done. They have done a wrong to Belgium which must be repaired. They have established a power over other lands and peoples than their own—over the great Empire of Austria-Hungary, over hitherto free Balkan states, over Turkey, and within Asia—which must be relinquished.

Germany's success by skill, by industry, by knowledge, by enterprise we did not grudge or oppose, but admired, rather. She had built up for herself a real empire of trade and influence, secured by the peace of the world. We were content to abide the rivalries of manufacture, science, and commerce that were involved for us in her success and stand or fall as we had or did not have the brains and the initiative to surpass her. But at the moment when she had conspicuously won her triumphs of peace she threw them away, to establish in their stead what the world will no longer permit to be established, military and political domination by arms, by which to oust where she could not excel the rivals she most feared and hated. The peace we make must remedy that wrong. It must deliver the once fair lands and happy peoples of Belgium and northern France from the Prussian conquest and the Prussian menace, but it must also deliver the peoples of Austria-Hungary, the peoples of the Balkans, and the peoples of Turkey, alike in Europe and in Asia, from the impudent and alien dominion of the Prussian military and commercial autocracy.

We owe it, however, to ourselves to say that we do not wish in any way to impair or to rearrange the Austro-Hungarian Empire. It is no affair of ours what they do with their own life, either industrially or politically. We do not purpose or desire to dictate to them in any way. We only desire to see that their affairs are left in their own hands in all matters, great or small. We shall hope to secure for the peoples of the Balkan peninsula and for the people of the Turkish Empire the right and opportunity to make their own lives safe, their own fortunes secure against oppression or injustice and from the dictation of foreign courts or parties.

And our attitude and purpose with regard to Germany herself are of a like kind. We intend no wrong against the German Empire, no interference with her internal affairs. We should deem either the one or the other absolutely unjustifiable, absolutely contrary to the principles we have professed to live by and to hold most sacred throughout our life as a nation.

The people of Germany are being told by the men whom they now permit to deceive them and to act as their masters that they are fighting for the very life and existence of their Empire, a war of desperate self-defense against deliberate aggression. Nothing could be more grossly or wantonly false, and we must seek by the utmost openness and candor as to our real aims to convince them of its falseness. We are in fact fighting for their emancipation from fear, along with our own—from the fear as well as from the fact of unjust attack by neighbors or rivals or schemers after world empire. No one is threatening the existence or the independence or the peaceful enterprise of the German Empire.

The worst that can happen to the detriment of the German people is this, that if they should still, after the war is over, continue to be obliged to live under ambitious and intriguing masters interested to disturb the peace of the world, men or classes of men whom the other peoples of the world could not trust, it might be impossible to admit them to the partnership of nations which must henceforth guarantee the world's peace. That partnership must be a partnership of peoples, not a mere partnership of governments. It might be impossible, also, in such untoward circumstances, to admit Germany to the free economic intercourse which must inevitably spring out of the other partnerships of a real peace. But there would be no aggression in that; and such a situation, inevitable because of distrust, would, in the very nature of things, sooner or later cure itself, by processes which would assuredly set in.

The wrongs, the very deep wrongs, committed in this war will have to be righted. That of course. But they can not and must not be righted by the commission of similar wrongs against Germany and her allies. The world will not permit the commission of similar wrongs as a means of reparation and settlement. Statesmen must by this time have learned that the opinion of the world is everywhere wide awake and fully comprehends the issues involved. No representative of any self-governed nation will dare disregard it by attempting any such covenants of selfishness and compromise as were entered into at the Congress of Vienna. The thought of the plain people here and everywhere throughout the world, the people who enjoy no privilege and have very simple and unsophisticated standards of right and wrong, is the air all governments must henceforth breathe if they would live. It is in the full disclosing light of that thought that all policies must be conceived and executed in this midday hour of the world's life. German rulers have been able to upset the peace of the world only because the German people were not suffered under their tutelage to share the comradeship of the other peoples of the world either in thought or in purpose. They were allowed to have no opinion of their own which might be set up as a rule of conduct for those who exercised authority over them. But the congress that concludes this war will feel the full strength of the tides that run now in the hearts and consciences of free men everywhere. Its conclusions will run with those tides.

All these things have been true from the very beginning of this stupendous war; and I can not help thinking that if they had been made plain at the very outset the sympathy and enthusiasm of the Russian people might have been once for all enlisted on the side of the allies, suspicion and distrust swept away, and a real and lasting union of purpose effected. Had they believed these things at the very moment of their revolution and had they been confirmed in that belief since, the sad reverses which have recently marked the progress of their affairs toward an ordered and stable government of free men might have been avoided. The Russian people have been poisoned by the very same falsehoods that have kept the German people in the dark, and the poison has been administered by the very same hands. The only possible antidote is the truth. It can not be uttered too plainly or too often.

From every point of view, therefore, it has seemed to be my duty to speak these declarations of purpose, to add these specific interpretations to what I took the liberty of saying to the Senate in January. Our entrance into the war has not altered our attitude toward the settlement that must come when it is over. When I said in January that the nations of the world were entitled not only to free pathways upon the sea but also to assured and unmolested access to those pathways, I was thinking, and I am thinking now, not of the smaller and weaker nations alone, which need our countenance and support, but also of the great and powerful nations, and of our present enemies as well as our present associates in the war. I was thinking, and am thinking now, of Austria herself, among the rest, as well as of Serbia and of Poland. Justice and equality of rights can be had only at a great price. We are seeking permanent, not temporary, foundations for the peace of the world and must seek them candidly and fearlessly. As always, the right will prove to be the expedient.

What shall we do, then, to push this great war of freedom and justice to its righteous conclusion? We must clear away with a thorough hand all impediments to success and we must make every adjustment of law that will facilitate the full and free use of our whole capacity and force as a fighting unit.

One very embarrassing obstacle that stands in our way is that we are at war with Germany but not with her allies. I therefore very earnestly recommend that the Congress immediately declare the United States in a state of war with Austria-Hungary. Does it seem strange to you that this should be the conclusion of the argument I have just addressed to you? It is not. It is, in fact, the inevitable logic of what I

have said. Austria-Hungary is for the time being not her own mistress, but simply the vassal of the German Government. We must face the facts as they are and act upon them without sentiment in this stern business. The Government of Austria-Hungary is not acting upon its own initiative or in response to the wishes and feelings of its own peoples, but as the instrument of another nation. We must meet its force with our own and regard the Central Powers as but one. The war can be successfully conducted in no other way. The same logic would lead also to a declaration of war against Turkey and Bulgaria. They also are the tools of Germany. But they are mere tools and do not yet stand in the direct path of our necessary action. We shall go wherever the necessities of this war carry us, but it seems to me that we should go only where immediate and practical considerations lead us and not heed any others.

The financial and military measures which must be adopted will suggest themselves as the war and its undertakings develop, but I will take the liberty of proposing to you certain other acts of legislation which seem to me to be needed for the support of the war and for the release of our whole force and energy.

It will be necessary to extend in certain particulars the legislation of the last session with regard to alien enemies; and also necessary, I believe, to create a very definite and particular control over the entrance and departure of all persons into and from the United States.

Legislation should be enacted defining as a criminal offense every willful violation of the presidential proclamations relating to alien enemies promulgated under section 4067 of the Revised Statutes and providing appropriate punishments; and women as well as men should be included under the terms of the acts placing restraints upon alien enemies. It is likely that as time goes on many alien enemies will be willing to be fed and housed at the expense of the Government in the detention camps and it would be the purpose of the legislation I have suggested to confine offenders among them in penitentiaries and other similar institutions where they could be made to work as other criminals do.

Recent experience has convinced me that the Congress must go further in authorizing the Government to set limits to prices. The law of supply and demand, I am sorry to say, has been replaced by the law of unrestrained selfishness. While we have eliminated profiteering in several branches of industry it still runs impudently rampant in others. The farmers, for example, complain with a great deal of justice that, while the regulation of food prices restricts their incomes, no restraints are placed upon the prices of most of the things they must themselves purchase; and similar inequities obtain on all sides.

It is imperatively necessary that the consideration of the full use of the water power of the country and also the consideration of the systematic and yet economical development of such of the natural resources of the country as are still under the control of the Federal Government should be immediately resumed and affirmatively and constructively dealt with at the earliest possible moment. The pressing need of such legislation is daily becoming more obvious.

The legislation proposed at the last session with regard to regulated combinations among our exporters, in order to provide for our foreign trade a more effective organization and method of cooperation, ought by all means to be completed at this session.

And I beg that the Members of the House of Representatives will permit me to express the opinion that it will be impossible to deal in any but a very wasteful and extravagant fashion with the enormous appropriations of the public moneys which must continue to be made, if the war is to be properly sustained, unless the House will consent to return to its former practice of initiating and preparing all appropriation bills through a single committee, in order that responsibility may be centered, expenditures standardized and made uniform, and waste and duplication as much as possible avoided.

Additional legislation may also become necessary before the present Congress again adjourns in order to effect the most efficient coordination and operation of the railway and other transportation systems of the country; but to that I shall, if circumstances should demand, call the attention of the Congress upon another occasion.

If I have overlooked anything that ought to be done for the more effective conduct of the war, your own counsels will supply the omission. What I am perfectly clear about is that in the present session of the Congress our whole attention and energy should be concentrated on the vigorous, rapid, and successful prosecution of the great task of winning the war.

We can do this with all the greater zeal and enthusiasm because we know that for us this is a war of high principle, debased by no selfish ambition of conquest or spoliation; because we know, and all the world knows, that we have been forced into it to save the very institutions we live under from corruption and destruction. The purposes of the Central Powers strike straight at the very heart of everything we believe in; their methods of warfare outrage every principle of humanity and of knightly honor; their intrigue has corrupted the very thought and spirit of many of our people; their sinister and secret diplomacy has sought to take our very territory away from us and disrupt the Union of the States. Our safety would be at an end, our honor forever sullied and brought into contempt were we to permit their triumph. They are striking at the very existence of democracy and liberty.

It is because it is for us a war of high, disinterested purpose, in which all the free peoples of the world are banded together for the vindication of right, a war for the preservation of our nation and of all that it has held dear of principle and of purpose, that we feel ourselves doubly constrained to propose for its outcome only that which is righteous and of irreproachable intention, for our foes as well as for our friends. The cause being just and holy, the settlement must be of like motive and quality. For this we can fight, but for nothing less noble or less worthy of our traditions. For this cause we entered the war and for this cause will we battle until the last gun is fired.

I have spoken plainly because this seems to me the time when it is most necessary to speak plainly, in order that all the world may know that even in the heat and ardor of the struggle and when our whole thought is of carrying the war through to its end we have not forgotten any ideal or principle for which the name of America has been held in honor among the nations and for which it has been our glory to contend in the great generations that went before us. A supreme moment of history has come. The eyes of the people have been opened and they see. The hand of God is laid upon the nations. He will show them favor, I devoutly believe, only if they rise to the clear heights of His own justice and mercy.

SHEEP SCABIES BEING ERADICATED.

Outbreaks of sheep scabies in Montana and Nevada, in which States the disease had not existed for several years, are rapidly being brought under control, according to the annual report of the Bureau of Animal Industry, United States Department of Agriculture. Work for the eradication of sheep scabies was begun in Texas during the fiscal year by the bureau in cooperation with officials in that State. During the fiscal year 9,702 square miles in Colorado were released from quarantine as a result of eradication. In the fiscal year more than 18,000,000 inspections of sheep were made in the field by the bureau employees and more than 5,500,000 sheep were dipped.

GRAIN REGION WEATHER SERVICE.

The Weather Bureau service for the 16 principal grain States has been improved during the past year by the establishment of additional stations in the western grain districts, according to the annual report by the Chief of the Weather Bureau to the United States Secretary of Agriculture. Publication of a weekly corn and wheat region bulletin has been begun at Chicago, the region center.

BIG WAR TASKS.

Bureau of Markets Organized and Expanded to Deal Effectively with Emergency Problems.

How the Bureau of Markets has organized and expanded its work in order better to aid farmers to meet unusual marketing conditions is described by David F. Houston Secretary of Agriculture, in his annual report just made public.

Many of the projects of the bureau were redirected in order to deal more effectively with emergency problems. The market news service for fruits and vegetables, begun during the fiscal year 1915, as well as that for live stock and meats, which was inaugurated in the fiscal year 1917, was developed as rapidly as possible early in the season with available funds. The reports were particularly valuable in connection with the shipment of perishable products, and large numbers took advantage of the timely information furnished by them. During the fiscal year 1917 approximately 3,000,000 bulletins regarding car-lot shipments and jobbing prices of fruits and vegetables were distributed to more than 52,000 individuals, including shippers, jobbers, distributors, and receivers.

Market News Service Enlarged.

An appropriation of $2,522,000 provided for in the food production act made possible a marked expansion of the machinery of the bureau. The news services for fruits and vegetables and for live stock and meats were still further developed and were extended to include hay, grain, and seeds, and dairy and poultry products. Three general reporting services, one daily and two weekly, are conducted for perishables at 25 stations, as well as a local service for truck crops in certain cities.

The first quarterly report of the supply of wool was issued on July 30, and represents, it is believed, the most complete inventory ever compiled of the wool supply in the United States. The reporting service for cold-storage holdings was rapidly enlarged and now includes 43 commodities.

Meat-Trade Conditions Reported.

Branch offices are now maintained at 12 important market centers to collect and distribute current information relative to supplies of live stock and meats, demands, prices, and other market conditions. Information on wholesale meat-trade conditions is secured daily from several of the largest eastern meat consuming and distributing centers, and a summary is immediately forwarded to the central live-stock markets in the West. More than 60 stockyard companies report their current live-stock receipts and shipments, and a summary of the figures is issued after the first of each month. Biweekly reports are made on hay and grain for certain sections. A semiweekly statement of bean prices, demand, and movement is made, and plans have been completed for issuing one each month on farm and garden seeds.

Fruits and Vegetables Inspected.

The food production act authorized the Secretary of Agriculture to investigate and certify to shippers the conditions as to soundness of fruits and vegetables and other food products when received at the important central markets. Rules and regulations for carrying out this provision of the act were published October 31, and the inspection service was inaugurated promptly in 24 of the large markets. This impartial and disinterested inspection service will, the Secretary believes, lessen the uncertainty surrounding the marketing of perishables and stimulate economical production.

In addition to its nation-wide food surveys now in progress, the bureau is making an effort to secure accurate information regarding the supply of fertilizer materials on hand, the probable production and consumption, and other facts relating to fertilizers.

NEW MARKETS OFFICE.

Branch of Federal Bureau of Markets Established at Minneapolis, Minn.

The Bureau of Markets, United States Department of Agriculture, is opening an office in Minneapolis, Minn., to take charge of its new grain and hay market reporting service for the north-central division, which includes the States of North Dakota, South Dakota, Minnesota, Wisconsin, and the northern peninsula of Michigan. The Minneapolis office will be located at No. 320 Flour Exchange Building. The north-central division is one of 10 divisions into which the country has been divided for this service.

Biweekly reports will be issued as soon as the necessary organization can be completed. These will show estimates of stocks of wheat, corn, oats, and hay in dealers' hands in each district, estimates of the amounts of each of these commodities which will be shipped from stations in each district during the two weeks following the date of the report, and of amounts which will be shipped to stations in each district during the two weeks following the report. The range of prices at which certain grades of these commodities are being offered for sale for shipment in carload lots at stations in each district on a given date will be given, as will the range of prices at which similar grades will be purchased for shipment to these stations on the same date. The reports also will show the lowest price at which certain grades of grain and hay are being offered for sale in carload lots for prompt shipment from a number of the large markets from which States in this division customarily draw their supplies. These reports will be distributed free by mail or any portion desired will be telegraphed to persons expressing their willingness to pay the charges.

ALONZO D. MELVIN.

Dr. Alonzo D. Melvin, Chief of the Bureau of Animal Industry, died December 7 after a long illness. At a meeting called by Assistant Secretaries Vrooman and Ousley, and attended by the chiefs of the bureaus of the department, a tribute to the memory of Dr. Melvin was paid in the following resolution:

Resolved, That the colleagues of Dr. Alonzo D. Melvin in the Department of Agriculture desire to express their deep sorrow at his death. They wish to record their personal appreciation of his long and loyal service to the department, of his courtesy and fairness in his official dealings with the heads of other bureaus, of his uniform equability and kindliness in his personal relations with department employees. They feel that in his death the department has lost an official of distinguished service. They recognize that the administration of the Bureau of Animal Industry during the period that he was at its head (a period of more than 12 years) was marked by ability, firmness, and efficiency. During that period the vitally important Federal meat inspection law was placed upon the statute books, and regulations were made, and both the law and its regulations have served as models for State enactments and for legislation by foreign countries. During that time also two serious outbreaks of foot-and-mouth disease have visited the United States, both of which were suppressed under his energetic and effective leadership. With his watchful encouragement the scientific workers of the bureau have pursued their studies with zeal and have achieved a number of signal and outstanding triumphs in their inquiries into the causes and remedies for animal diseases. Occupying this difficult position, it is the universal testimony of his associates and acquaintances that he was an official of sterling honesty and integrity, and that in the discharge of his responsibilities he gave his entire strength and his life in unselfish service for others.

The colony plan of housing poultry may be adopted to good advantage on many farms. This system does away with the danger of tainted soil.

BACK YARDS PROFITABLE.

Millworkers' Small Gardens Furnish Vegetables for Families—Cows and Chickens Add to Incomes.

Cotton-mill workers in certain North and South Carolina manufacturing communities make their back yards feed their families a large part of the year. The members of the family cultivate vegetable gardens, attend to a cow and chickens, and thus produce low-cost food that has made home gardening a very important economic factor in the life of these communities.

This survey suggests opportunities for industrial establishments elsewhere to promote the welfare of their employees, as has been done in these mill villages, by making it possible and convenient for the workers' families to reduce the cost of living by the home production of food. In the case of these cotton mills, the plants have been located in the open country where cheap land is available for gardens and pasture commons.

The gardens are small in size, averaging about one-fourth of an acre, but they supply the family with vegetables for six months in the year, and longer in the case of winter gardens. In one town one-third of the gardens averaged $48 worth of vegetables per garden—at 1915 local prices. The good gardens were only one-tenth of an acre larger and cost only $1 more to cultivate than the poor gardens. Careful planning and attention brought the best results. These gardens were for home consumption principally, although the vegetables sold readily when placed on the local market.

These facts were obtained by a careful survey of home-gardening conditions in cotton-mill towns in North and South Carolina, made by the Office of Farm Management of the United States Department of Agriculture and discussed in Bulletin No. 602 of the department. It was found that 22 varieties of vegetables were grown in the towns visited—not all in any one garden, of course—and that the most successful gardens grew more than 10 kinds of vegetables.

Go and Do Likewise.

Every family with even a very small yard can do as well as these cotton-mill families have done in back-yard food production. Few homes are found where the conditions and opportunities are not as favorable, and very often they are better.

In the cotton-mill towns where these investigations were conducted there are rows and rows of cottages occupied at low rent by those who work in the factories. Each house has a small patch of land for a front yard and a tiny tract in the rear. As these industrial sections grew it became apparent that home gardens would better the economic conditions of the community. Accordingly some mills employed demonstration agents and conducted experiment farms to encourage their employees to have home gardens. The space around each cottage was provided primarily for gardening purposes, and, in addition, some employers set aside a pasture immediately adjoining the mill village for free pasturage of the employees' cows. Another mill owner gave the services of a purebred dairy bull to his employees who owned their cows. In another village the mill owner offered prizes for the best garden.

Average Results Good.

In nine different mill villages in North and South Carolina, records were taken of 548 gardens, 165 poultry flocks, 74 cows, and 62 hogs. Instances of poor management as well as of good were included in these cases, and the result is considered a fair average. The average value of vegetables raised in the gardens was $29.87. These figures are on the basis of 1915 local prices. Prices, of course, would be higher at the present time. The average size of the gardens was one-fourth of an acre. The average cash cost per garden was $3.54, of which $1.51 was for labor, $1.51 for seed, and $0.52 for fertilizer. The labor expenditure was limited practically to the cost of having the garden plowed and furrowed.

Of 144 families who had gardens ranging between 300 and 499 square yards in size, 35 produced on an average nearly $50 worth of vegetables, considerably more than they paid for rent per year. It was found that the best success on a limited area involved careful planning so as to have as much space as possible for each class of vegetable. The proper succession of vegetables must be known. Late vegetables may be planted between rows of early vegetables, allowing the late vegetables to grow while the early ones are maturing. Individual attention and knowledge of gardening are essentials to success.

Bulletins giving the necessary detailed gardening information may be secured from the United States Department of Agriculture, or from State experiment stations.

Collards as a Winter Crop.

One of the best winter garden crops found in these communities was collards, a variety of kale. These were grown on about one-fourth of the gardens visited in the cotton-mill towns. Turnips, sown after the other vegetables are removed, were also grown for winter greens.

Little fruit was raised in these communities. This is explained largely by the continual changing of tenants. The person who has doubts of remaining on a place for more than a year or so will not set out and attend to fruit which will not yield for four or five years and the benefits of which will go to some one else. This condition presents an opportunity for mill owners to initiate a plan for the planting of fruit trees in the factory villages.

Poultry Pays Well.

It was found that a large number of families in these towns keep small flocks of poultry, usually of mixed breeds and with poultry houses of a temporary and inexpensive type. The average size of the flocks was between thirteen and fourteen fowls, with an average egg yield of 86 dozen. The total average expenditure per flock for eggs, fowls, wire, and feed was $16.22 and the average return was $30.42 per flock, or a net average of about $1 per fowl. Labor cost and interest on investment is not charged against the flock in these figures. The labor was performed by the family, and the interest on the investment was negligible.

In most cases the feed consisted largely of cracked corn and other cereals. Table scraps were fed to the poultry, although this is not included in the feed cost. Twelve flocks were fed wholly on table and garden waste. Unlike the average farm flock, the fowls in these towns were not able to run about and find their own feed, being penned the greater part of the year to keep them from running on the gardens.

Families Keep Cows.

In most of the cotton-mill villages the mill worker was encouraged to keep a family cow. Frequently pastures just outside the village were available for the free use of families having a cow, and these were found to be fully utilized. In some villages the mill companies put up substantial stalls for sheltering the cows. The whole milk is

A THOUGHT FOR MILL OWNERS.

Workingmen's families in cotton-mill villages in North and South Carolina made an average of $26.93 on back-yard vegetable gardens in 1915. The gardens averaged one-fourth of an acre in size. The cost was $3.54, and the vegetables produced were worth $29.87 on an average. These figures are for 1915, and would be higher at the present time.

Mill families had an average net return of slightly more than $1 per fowl per year from back-yard poultry flocks. Mill families had an average net return of $39.41 per year from a cow worth $46. The average yearly feed cost was $80.49, and the average yearly yield of milk, buttermilk, etc., was $119.90.

Some families with very small garden patches made from those gardens more than they paid for rent.

These results of a little encouragement on the part of mill owners, while in no way remarkable agriculturally, are presented as suggestive of what the industrial establishment can do for its employees by locating where the cost of living may be kept down by the home production of food.—Survey, United States Department of Agriculture.

churned by most of the people in this section, and the quantity of buttermilk nearly equals the quantity of whole milk which is produced. This, at the time the survey was made, sold at 10 cents a gallon, much of it being used for drinking purposes by each family. The average cost of feed per cow was $80.49 a year and the average returns were $119.90. These comparatively high returns are attributable to the high value of buttermilk, which was worth a little more than the butter. The butter alone would not pay for the feed.

In most of the mill towns pigs are barred from the village for sanitary reasons. Some families have pens located just outside the town, but the necessity of carrying the feed a long distance is a discouraging factor.

Beans and tomatoes were the vegetables grown in largest quantities in all the gardens studied in the mill towns. And yet, although these vegetables are particularly adapted to canning, one-third of the families in these towns did no canning at all, and those who did can put up comparatively small quantities. After beans and tomatoes, the vegetables most generally grown in the mill-town gardens were corn, sweet potatoes, greens, cucumbers, Irish potatoes, onions, cabbage, collards, peas, okra, peppers, turnips, and beets.

TRACTORS SOLVE LABOR PROBLEM.

In an attempt to solve the labor problem in the State of Maryland and to insure an increase in the wheat acreage, the State council of defense has purchased four tractors to be used in preparing land for wheat by plowing, harrowing, etc. Two of these tractors are being used in Kent County and one each in Cecil and Harford Counties. The routing of the tractors is in the hands of the county agents. The farmers' applications are listed and itineraries for the tractors are made out accordingly.

Charges for the use of the tractors are based on the absolute cost of operation. These charges range from $2.50 to $3 an acre for plowing and 50 cents an acre for harrowing or disking. The results thus far have proven entirely satisfactory. Plans are already under way to continue the use of the tractors in the preparation of land for spring crops.

In addition to meeting an emergency, the use of the tractors has resulted in the purchase of a number of them by individual farmers and groups of farmers.

Good chicken roosts may be made of 2 by 2 inch material with upper edges rounded. They should be built on the same level, about 2 or 3 feet from the floor. If a dropping board is used it should be placed about 8 inches below them.

CRACKS IN CONCRETE.

Wetting, Drying, and Other Influences Studied by Specialists of the Office of Public Roads.

Cracks in concrete pavements will likely be a less baffling problem to builders as the result of a seven-year study of their causes recently concluded by specialists in the Office of Public Roads of the United States Department of Agriculture. Observing particularly the expansion and contraction due to alternate wetting and drying of concrete, records were made of the values of these moisture and temperature movements under various conditions. A waterproof covering, such as coal tar, it was learned, prevents a rapid change in moisture content and greatly retards the expansion and contraction.

Other important results which should be of value to concrete workers, especially highway engineers, are contained in a recent report of the investigation, Bulletin 532 of the Department of Agriculture, which will be sent free on application.

The report makes no attempt to apply the results obtained to the practical side of road construction, although certain general conclusions drawn, it is said, may be capable of immediate utilization by engineers. These conclusions follow.

Conclusions Drawn from the Tests.

1. Neat cement when allowed to dry, first contracts rapidly, then more slowly. The amount of contraction seems to vary with the cement, size of specimen, and condition of atmosphere in which drying takes place. The amount at 28 days is about 0.1 per cent and at 6 months about 0.2 per cent.

2. Mortar contracts on hardening in air and expands on hardening in water. The contraction in warm, dry air at 28 days is about 0.045 per cent for 1:2 and 1:3 mortar and at 6 months is 0.078 for 1:3 mortar and 0.085 for 1:2 mortar. The expansion in water is 0.01 per cent for 1:3 and 0.017 for 1:2 mortar at 28 days, and at 6 months 0.013 for 1:3 and 0.02 per cent for 1:2 mortar.

3. Both 1:2:4 and 1:3:6 concrete contract on drying in warm, dry air from 0.02 to 0.04 per cent at 28 days and from 0.04 to 0.07 per cent at 6 months. When hardening in water an expansion of about 0.01 per cent takes place at 28 days and 6 months in 1:2:4 and 1:3:6 concrete.

4. The richness of the mix of concrete seems to exert a small influence on the contraction; the richer the mix the greater the change in length.

5. The concrete alternately wetted and dried may be made to expand and contract owing to these causes. The expansion due to wetting is more rapid than the contraction on drying. The thoroughly dried specimens of concrete do not recover their original wet length when immersed.

6. Concrete stored in the outer air and exposed to the weather does not contract to the same extent as the above described specimens except under very dry conditions.

7. A waterproof covering such as coal tar prevents the rapid change in moisture content and greatly retards the expansion and contraction.

8. Reinforcement decreases, but does not prevent, the shrinkage and expansion of concrete due to drying and has no effect on temperature changes. Reinforcement can not, therefore, entirely prevent cracks, but seems to distribute them and keep them small.

9. Concrete roads are affected by both temperature and moisture. When the drainage is good and the sub-base not wet, the temperature effects seem to be most important. A wet sub-base may add to the temperature expansion by about 0.01 to 0.02 per cent. The restraining effect of friction at the base seems to be almost negligible when figuring temperature and moisture expansion and contraction. In very dry climates shrinkage due to drying must be added to contraction due to fall in temperature. A shrinkage of 0.04 per cent (one-quarter inch in 50 feet) is a safe allowance due to drying.

10. Temperature at time of construction of road should be considered in designing joints. Cold-weather construction requires a full allowance for temperature expansion and, on wet sub-bases, for moisture expansion also. Hot-weather construction theoretically requires no joints at all, even in wet sub-bases, as the temperature contraction exceeds the moisture expansion. However, the difficulty of keeping the cracks clear probably renders joints imperative.

ALFALFA WEEVIL CONTROL.

Spreading slowly but uniformly over cultivated and wild country, the alfalfa weevil has invaded the western slope of the Rocky Mountains. One of the most common means of distribution is through the movement of infested alfalfa hay, but the insects have been found also in clothing and trunks.

Means of controlling the weevil that are being used extensively consist of flooding the field so as to cover them with sediment, spraying with arsenicals in the spring and between cuttings; progressive pasture; and harrowing the fields when they are dry in order to produce something resembling a dust mulch, which kills the insects.

Some food may become dangerous even before it shows outward signs of decomposition. Always keep food in clean utensils and use it without unnecessary delay.

STEPS TO VICTORY.

Secretary of Agriculture Reviews Nation's Important War Accomplishments and Problems. Agricultural Difficulties—Need for Sound Financing.

David F. Houston, Secretary of Agriculture, delivered the following address on "Steps to Victory" before the Economic Club, of New York, on December 6, 1917:

This is a day of big things, of staggering questions, of unprecedented undertakings, and of incredible happenings. It is almost true that the incredible is the only believable and the impossible the only attainable. One can not be shocked or surprised or diffident any more. Therefore I entertained with complacency the suggestion that I meet you here and discuss the theme of the evening.

It is unnecessary for me to confess that I am not wise enough to dispose of this subject to your satisfaction or to my own. I am not equal to it; but I have the satisfaction of knowing that all of you are not, and even all of us at this head table are not. Perhaps a unified allied council may discover, indicate, and take all the necessary steps, but I am reasonably certain that nothing less will suffice.

There is one thing I like about the subject. It evidences the right spirit, the requisite determination, and a commendable and justifiable optimism. It assumes that we must and shall win, and win without undue delay. It implies that, having put our hand to the plow, we will not turn back, or even look back, and that we refuse to entertain the suggestion of possible failure.

First and Last Steps to Early Victory.

A clear, fixed, unalterable purpose to attain the ends we had in mind in accepting Germany's challenge, based on a thorough appreciation of the meaning of this struggle and a willingness to make all necessary sacrifices, I regard as the first and last most essential steps to an early victory. This war is a test of the spirit of nations, even more than of their material resources and strength. The issue of it depends on the relative intelligence, moral qualities, and attitude of the people engaged. Never before has there been a war which so effectively demanded the highest exhibition of intellectual capacity and also the unfaltering display of will power and moral courage. No more important duty confronts the leaders of thought everywhere than that of informing the national mind and of sustaining and confirming its spirit and purpose. Public opinion must be anchored and the motive for terrible sacrifices be firmly fixed. No matter what the difficulties, no matter what the seriousness of the strain, there can be no faltering. Civilization can not afford to entertain the thought of defeat. The challenge of Germany went to the roots of freedom and of national existence. There is no halfway house. Proposals to parley with an unbeaten enemy, who proclaims himself victor, indicate nothing less than a willingness to admit defeat. They spell relaxation of effort and demoralization. They mean assent to Prussia's century-old policy of extending her medieval patrimony by force and of gradually imposing her will on the world. They mean nothing more than a truce, "a truce with usury," a mere interruption of the strain and its assumption at a later day with interest compounded. All history points to this conclusion.

The Pacifist a Constant Menace.

No greater dangers confront democracy than those which may arise from drifting, from mental or moral fatigue, from confused advice, from entertaining dangerous fallacies, and indulging in friendly optimistic sentiments toward an implacable enemy. These are the dangers which extreme partizanship and pacifism breed. The pacifist is a constant menace; the mere partisan a criminal; and especially obnoxious is the vain omniscient partisan to whom the future is an open book, who alternately rags the public and assaults its enemies, censures everybody and everything except himself, indulges in irresponsible criticisms and misrepresentations, causing unwarranted popular confusion and unrest, generally giving aid and comfort to the enemy. These things must be abated through force of an educated public opinion if possible; but, in any event, must be abated.

People Willing to Make Sacrifices.

The indications to date are numerous that the people of this Nation as a whole have an effective appreciation of the meaning of the struggle and a willingness to make large sacrifices. It is only necessary to go among them to realize the strength of their sentiments and determination. Everywhere I have been impressed with the sound sense and fine spirit of the great majority of our citizens. In respect to patriotic attitude, I have confirmed my suspicion that there were no geographical boundaries to it, no North, no South, no East, no West, and that no section has a monopoly of intelligence or patriotism.

We may also judge conclusively the state of mind of the people by the action of Congress. This body represents public opinion. It does not adopt and pursue a course of action if the people are hostile. In six months, that body has given to popular sentiment an expression without parallel in parliamentary annals. The first great step toward winning this war was taken when the President of the United States, on April 2, in advising Congress to declare the existence of a state of war with Germany, pointed out what war would involve and demand. The striking thing about that historic address was not so much the advice it contained, momentous as that was, but rather the clear perception it revealed of the magnitude of the task before the Nation.

Response of Congress.

The response of Congress was prompt and adequate. It authorized and directed the President to employ the entire Navy and military forces of the Union and pledged to the Government all the resources of the Nation to bring the conflict to a successful termination. The task of making good this pledge was entered upon and discharged in such manner as to startle many at home and to amaze even foreigners who had become habituated to prodigious operations. I well remember some characteristic remarks of Lord Northcliffe during his visit to Washington. Suddenly stopping and turning to me, he said: "Am I dreaming?" I asserted that he did not look like a dreamer. He continued: "I am told that Congress declared war on the 6th of April, authorized the Secretary of the Treasury to borrow approximately eleven and a half billion dollars, enacted a new tax law designed to raise two and a half billions in addition to ordinary revenues, appropriated or authorized nine billions for the Army and Navy, over a billion for ships, with a maximum authorization of nearly two billions six hundred and forty millions for aeroplanes, credits to the allies of seven billions, a total of actual appropriations and authorizations of twenty-one billions; gave power to commandeer plants, ships, and materials; provided for conscription, which England had not fully

resorted to and Canada had not then adopted; that there had been registered or enlisted nearly ten and a half million men; that Pershing was in France and naval vessels were in Europe; that the food-production and food-control measures had been passed; and that authority had been given for the control of exports and imports and of priorities."

He repeated: "Am I dreaming or is it true?" I replied that unless I was dreaming it was true. He said: "I can't believe it." I told him I could believe it but that I could not comprehend it. It is difficult now to do so. The figures even for particular items are beyond comprehension. Think of them. For ships an authorization of a billion nine hundred millions, nearly double our former Federal budget; for aviation, six hundred and forty millions; for torpedo-boat destroyers, three hundred and fifty millions; for army subsistence and regular quartermaster supplies, eight hundred and sixty millions; for clothing and camp and garrison equipment, five hundred and eighty-one millions; for transportation, five hundred and ninety-seven millions; for medicine, one hundred millions; for mobile artillery, one hundred and fifty-eight millions; for ordnance stores and supplies, seven hundred and seventeen millions; for heavy guns, eight hundred and fifty millions; and for ammunition for the same, one billion eight hundred and seven millions.

The Federal Reserve Law and the War.

Clearly Congress for the time being had taken the necessary steps to make good its pledge of placing the resources of the country at the disposal of the Government. At the same time it created or authorized the creation of essential administrative agencies. In respect to administrative agencies important developments had already taken place. Most striking and significant of all was the enactment of the Federal reserve law and the creation of the Reserve Board and banks. This action obviously was taken without suspicion that the world was on the verge of war and that we would soon be involved. It was taken to insure better banking conditions in time of peace, and especially to enable us to weather financial storms. Before the reserve act was passed the Nation, as you well know, had no adequate banking system. Its financial arrangements had never been able to withstand strain, either in peace or war. In each of our considerable struggles we had promptly suspended specie payments, with all its attendant disabilities and burdens. But now, after four years of world financial strain, such as no financier dreamed it possible for the world to bear—I might say for six years, because there was a world-wide financial chill for at least two years before 1914, due to apprehension of war and to the undoubted financial preparations made by the central powers—after this long strain and the shock of the last six months, our finances are sound and we are proceeding in orderly fashion. For this reason, and because of our obligation to extend liberal credits, it is not extravagant to say that no greater contribution to the winning of this war has been or will be made than through the passage of the Federal reserve act in 1913 and the successful establishment of the system well in advance of trouble.

Organization of Consulting Boards.

Steps toward preparedness in respect to other highly essential interests were taken much before war was declared. Their significance was not grasped by the public at the time. For the most part they have been overlooked. Pursuant to an act of Congress of March 3, 1915, two years before the war, the President appointed the National Advisory Committee for Aeronautics, composed of the most eminent students of the subject. In connection with the work of this committee and in part through its labors has been developed our enormous aviation program and expansion. Likewise, during the summer of 1915, the Secretary of the Navy organized the admirable Naval Consulting Board with Edison as chairman and 2 representatives elected by each of 11 great engineering and scientific societies. Furthermore, on September 7, 1916, after a long and unfortunate delay caused by unintelligent opposition, the shipping act was passed, creating a board with large powers and appropriating fifty millions of dollars for the construction, purchase, charter, and operation of merchant vessels suitable for naval auxiliaries in time of war. This was the beginning of the present huge shipbuilding program whose speedy execution is of paramount importance.

The Council of National Defense.

But that is not all in the way of early preparedness. On August 29, 1916, the Council of National Defense, consisting of six heads of departments and of an advisory commission of seven, nominated by the council and appointed by the President, was created. The council was charged with the duty of mobilizing military and naval resources, studying the location, utilization, and coordination of railroads, waterways, and highways, increase of domestic production for civil and military purposes, the furnishing of requisite information to manufacturers, and the creation of relations which would render possible the immediate concentration of national resources.

The creation of the Council of National Defense was not the result of sudden inspiration. It was directly suggested by the activities of two very important groups of individuals. In March, 1916, a committee from the five great medical and surgical associations, having an aggregate membership of from 70,000 to 100,000, was formed. It met in Chicago on April 14, 1916, and tendered to the President the services of the medical men of the Nation. In March, also, representatives of five engineering organizations, with a membership of 35,000, met in New York and formulated a plan to make an inventory of the country's producing and manufacturing resources. The thought and purposes of these two bodies were brought to the attention of the President and their consideration resulted in recommendations for the creation of the Council of National Defense.

New Agencies Created.

Thus, a number of months before war was declared agencies had been created covering, at least in outline, many of the essential new activities. Seven of these of peculiar importance had begun to find themselves and to chart their course. I refer to the Shipping Board, the aviation, the medical, the manufacturing, the transportation, the munitions, and the labor committees. When war came these bodies greatly speeded up their work. Others were created—among them, the Food Administration, the Fuel Administration, the War Trade Council, the War Trade Board, and the War Industries Board.

The War Industries Board.

The last is of unique importance, and yet its work is little understood. It is in effect a munitions ministry and something in addition. It has received from the outset the hearty and cordial approval of the Secretaries of War and Navy, and has their confidence and strong support. Its members are the direct representatives of the Government and of the public interest. The tasks of the board are stupendous. It acts as a clearing house for the war industries' needs of the Government, determines the most effective ways of meeting them, the best means of increasing production (including the creation of new facilities), the priority of public needs and also of transportation. It considers price factors, the labor aspects of industrial operations, large purchases of commodities where market values are greatly affected, and makes appropriate recommendations to the Secretaries of War and Navy. Judge Lovett is in immediate charge of priorities, Mr. Baruch of raw materials, and Mr. Brookings of finished products. These three constitute a commission for the approval of purchases by the allies in this country from credits made through the Secretary of the Treasury. The board maintains intimate touch with the President, the Council of National Defense, the Secretaries of War and Navy, and from the initial stages of negotiations takes part with the appropriate services of the departments in developing and securing supplies. I need only remind you of the items of the appropriations for supplies, ordnance, and other things to impress you with the magnitude of the board's task. Doubtless its machinery

is not yet perfect. It would be singular if it were; but it is working. It will operate with increasing efficiency as time passes. It is not clear that any better scheme could be devised; and I am sure that no wise step will be omitted to make it as nearly adequate as possible.

Mobilization of Talent.

No machinery is of great value unless it is properly manned. The right sort of men is the first requisite of any kind of successful enterprise. I believe this requisite has been satisfied and that the Nation is mobilizing for this emergency additional men of as high character and fine talent as it possesses. Where so many are involved special mention is invidious, and I cite the names of the following merely as samples: Willard, Gompers, Baruch, Rosenwald, Coffin, Martin, and Godfrey; Hoover, Garfield, Vanderlip, Davison, Vauclain; McCormick, Thomas D. Jones, Lovett, Brookings, and Frayne; Dr. Anna Shaw, Mrs. Phillip Moore, Mrs. Cowles, Mrs. Catt, Miss Wetmore, Mrs. Lamar, Mrs. Funk, Mrs. McCormick, and Miss Nestor; and Drs. Simpson, Crile, Janeway, Flexner, Vaughn, Mayo, and Welch—all fine types of American citizenship, only a few of the hundreds working in their respective spheres in the Nation and in the States, having no selfish end to serve, working with an eye single to the public interest and to the winning of this war, giving freely their services in as fine spirit as the Natien ever witnessed, revealing the real strength of democracy.

So much, and perhaps more than enough, as to the congressional pledge of resources and the creation of machinery. Let us turn to other matters which I am sure you have in mind. I know you are asking what is being accomplished. What are the results? Obviously, some of them it would be inadvisable to indicate. Others I can only hint at. For the most part they have been detailed to the public through one agency or another from time to time. I shall try to summarize.

The Army Cantonments.

The Nation has to-day in all branches of its military services under arms and in training over 1,800,000 men, some in France, some on the ocean, and others in camps or at their posts of duty at home. Approximately ten and a half millions of men have been enlisted in the Regular Army, incorporated in the National Guard, or registered under the draft act. Those registered but not yet called out are being classified on the basis of national need. Rapid headway has been made in training subordinate officers, and the gigantic undertaking of providing suitable quarters or camps for the men in training has practically been finished. The Nation now has 35 Army cantonments—16 for the National Army, 16 for the National Guard, 2 at points of embarkation, and 1 for the Quartermasters' Training School—all complete in respect to buildings or tents, lighting, sanitary arrangements, and temporary roads. The National Army contonments were completed within the time set by the General Staff. What this involved can not easily be set forth. It entailed the selection of sites, the planning of buildings, the securing of responsible contractors, the mobilization of labor, the assembling of materials, and the construction of modern hospitals and roads. These camps alone cover 150,000 acres and called for the use of 75,000 carloads of materials, including 500,000,000 feet of lumber. Their cost was approximately $128,000,000. The work was begun June 15 and the finishing touches were put on by December 1. In addition 16 canvas camps for the National Guard were completed at a cost of approximately $48,000,000. Thus local habitations were quickly provided for the new army, superior in respect to ventilation and conveniences to the best practice of Europe.

Five instrumentalities or factors highly necessary for victory, it may be asserted without hesitation, are destroyers—the enemies of the submarine—airplanes, ships, medical service, and food. What of these?

To Fight the Submarine.

Of the first, the torpedo-boat destroyers, all I may say is that the construction program of the Navy contemplates 787 ships of all types, at an estimated cost of $1,150,000,000, including additional destroyers costing $350,000,000. The latter are to be of uniform standard model, large and fast. Some are to be built within 9 months and all within 18 months. This vast and urgent undertaking required a great extension of building facilities, and as private capital was unable or unwilling to make the extensions the Government had to do so. When completed, these plants belong to the Nation. I may add that these destroyers will require thousands of men to man them, but that they are being trained, and when the vessels are completed the crews will be ready.

Control of the Air.

The work for the control of the air grows apace. Of the great aviation training fields, 17 in number, 2 are old, 1 is rebuilding, 7 were practically completed by September 1, and 7 others will be finished within two weeks. In addition there are in operation to-day at leading universities 10 ground schools giving preparatory instruction in flying. Finishing courses are being given to our students in most of the allied countries, and more than 30 experienced foreign air service veterans have been loaned to us for duty in Washington and elsewhere. The building program calls for 20,000 machines. It will be expedited by reason of a great and interesting achievement, that of a standardized engine, something which no European nation has developed even after three and a half years of war. This accomplishment is in line with the best American traditions and was made with unique speed. What standardization of the engine and of its parts means in respect to speed and quantitative production, in repairs and economy of materials, need not be dwelt upon. It has been estimated that the service when in full strength will require a full force of 110,000 officers and enlisted men, an army greater than our regular military force of a few months ago.

Providing More Ships.

All agree that the enemy submarine must be destroyed. In the meantime shipping sunk by them must be replaced. England must not be starved. Supplies to all the allies must go forward without interruption. Our own troops must be transported and provided with everything essential for effectiveness and comfort, and domestic transportation of men and commodities be maintained and greatly increased. Furthermore, commodities must be brought here from many distant places. Therefore we must have ships, more ships, at once. Nothing more urgent. How is this matter proceeding? In the first place, the Shipping Board, on August 3, commandeered 426 vessels either in course of construction for domestic or foreign account or contracted for, with a tonnage of over 3,000,000. Thirty-three of these ships, with a tonnage of 257,000, have been completed and released. Ex-German and Austrian ships with a capacity of 750,000 tons have been taken over for Government use. The Fleet Corporation has contracted for 948 vessels with a total tonnage of 5,056,000, of which 375, with a tonnage of one and a third million, are wooden; 58, with a tonnage of 270,000, are composite; and 515, with a capacity of 3,500,000, are steel. All these ships have an aggregate tonnage of 8,835,000, or nearly a million and a half tons greater than that of the regular merchant marine of the Nation in 1916. Contracts for 610,000 tons additional are pending. The total building program calls for over 10,000,000 tons, and it is proposed that 6,000,000 shall be constructed by the end of 1918 and 1,000,000 by April 1. The nature of this task may be more easily appreciated when it is remembered that the construction in the United States for 1916 did not exceed 400,000 tons and that the average for the five years preceding was 350,000. At present there are 100 yards building ships, exclusive of 20 building the commandeered vessels, and of these 100, 70 are new. The policy of standardization has been pursued and five classes of ships have been adopted.

Medical Organization.

I have already referred to the preliminary steps toward medical organization. Further action was promptly taken. An inventory

was made of the medical resources of the Nation, of doctors, nurses, and others who could be called by the Surgeon General, and of hospitals and supplies. Courses in modern military medicine and surgery for third and fourth year students were formulated and adopted by 75 of the 95 medical schools in January, 1917. It was known that 80 per cent of the instruments used in this country were made in Germany. It was necessary to develop their production here, and to facilitate this the first essential step was to introduce standardization, to resort to staple articles. More liberal standards were authorized and the variety of types was greatly reduced. Instead of scores of kinds of scissors a dozen were agreed upon. Instead of many sorts of needles, forceps, and retractors, two, three, or four types were adopted. Manufacturers were given priority of materials and consequently full military orders will be delivered in less than eight months. It is illuminating that one concern, taking its chances, had manufactured according to specifications, by the time it was awarded a contract, enough material to require 10 carloads of lumber for packing. This was the result of the efforts of 75 of the most eminent medical specialists of the Nation, working with the military staff in contact with 250 leading manufacturers.

The peace strength of the medical forces of the Army was 531 and of the Navy 480. Now the Surgeon General of the Army has in his regular force and in the new enrollment of physicians actually accepting commissions 16,432, a number sufficient for an army of two and one-third millions, and a dental force of 3,441, adequate for an army of 3,400,000. The Navy now has 1,795 medical officers, a number in excess of present needs. The Red Cross has enrolled 15,000 trained nurses, organized 48 base hospitals with 9,600 doctors, nurses, and enlisted men, 16 hospital units with smaller staffs to supplement the work of the base hospitals, is furnishing supplies to 35 hospitals of all sorts in France, and since May has raised over $100,000,000.

Organization of Agriculture.

What shall I say about the organization of agriculture for the production of food, clothing, and other materials? It is unnecessary to dwell upon the need of an adequate supply of food for the civilians and soldiers of this Nation and also for those of the nations with whom we are associated. When we entered the war, this country was and had been facing an unsatisfactory situation in respect to its supply of foods and feedstuffs. The production in 1916 of the leading cereals was comparatively low, aggregating 4.8 billions of bushels as against 6 for 1915, 5 for 1914, and 4.9 for the five-year average. The wheat crop had been strikingly small and it was certain that on account of adverse weather conditions the output for 1917 would be greatly curtailed. The situation was no better in respect to other conspicuously important commodities, such as potatoes and meats. The need of action was urgent and the appeal for direction insistent. The Nation looked for guidance primarily to the Federal department and to the State agencies which it had so liberally supported for many years. It was a matter of great good fortune that the Nation had had the foresight, generations before, in another time of national stress, in 1862, to lay soundly the foundations of agriculture. In respect to agencies working for the improvement of rural life, the Nation was prepared. In point of efficiency, personnel, and support it had establishments excelling those of any other three nations combined, and a great body of alert farmers who were capable of producing two or three times as much per unit of labor and capital as the farmers of Europe.

Steps were quickly taken to speed up production. In a two-day session at St. Louis the trained agricultural officers of the country conceived and devised a program of legislation and organization, the essential features of which have not been successfully questioned, and the substantial part of which has been enacted into law and set in operation. Initiative was not wanting in any section of the Union. Effective organizations quickly sprang up in all the States and the services of experts everywhere immediately were made available. The response of the farmers was prompt and energetic. Weather conditions for the spring season were favorable and the results are that crop yields have been large and that the Nation is able not only to feed itself but in considerable measure to supply the needs of those with whom we are cooperating.

That the farmers of the Nation have generously responded to the appeals for increased production, and that much has been done to insure a large supply of foods and feedstuffs, justifies no let down in their activities or in those of all agricultural agencies. On the contrary, even greater efforts must be put forth in the coming months, if we are to meet fully the civilian and military demands. There must be no breakdown on the farms, no failure of foods, feedstuffs, or clothing. Especially must we have a more abundant supply of meats and fats to replenish the stores of the long-suffering allies.

Difficulties Confronting Agriculture.

Many difficulties confront the agricultural forces. Fertilizers are scarce. Farm machinery has advanced in price and transportation is burdened. To secure an adequate supply of labor everywhere will demand our best energies. Especially serious to the farmer is the task of retaining on his farms his regular year-round help. An army could not be raised without taking men from every field of activity and it would have been unfair to any class to have proposed its complete exemption. The problem is a constructive one. Mere complaint is useless. Our aim is to secure even greater production from the labor on the farms; and it must be attained. Farmers in the same community must cooperate with one another more actively. Forms of labor not heretofore regularly or fully utilized must be employed and plans for the shifting of labor from places where the load has passed to communities where there is urgent need must be perfected. Whether more drastic action will be needed remains to be seen. General conscription would present many difficulties. Several things are certain. Relatively nonessential industries must be prepared to release labor and capital for essential undertakings; and, either through State or Federal action, any able-bodied individuals who can but will not do useful work must be pressed into the service.

Unity in Action.

It would appear, then, that the courses we must follow, the directions we must take to win victory, have been indicated and charted. While corrections and extensions will be made, I am confident that the important essential steps have been taken and that success will come rather through steadying and expediting these than through any novel enterprises. Unquestionably the coordination of all domestic agencies, governmental and private, must be perfected so that the Nation may direct its great energies and resources with full effect against the enemy. I am equally confident that the most "practicable cooperation in counsel and action with the Governments now at war with Germany" must be secured. What specific form that shall take I am not wise enough to suggest; but that there must be unity of policy and effort, the wisest utilization of our combined resources, and the most skillful, strategical handling of military and naval forces on the basis of international and not of particularistic interests under an unhampered, common control seems to admit of no manner of doubt. Mistakes may be made even then, but not so many or as fateful ones as may be made if there are as many programs as there are nations involved. Campaigns can not otherwise be successfully conducted and battles won against great powers having the advantage of interior lines and of a single, absolute directing mind. The solution of this problem is the present pressing need for victory now or later.

Financial Burden Borne Now.

Furthermore, we must keep in the forefront of our thinking the imperative necessity for maintaining the integrity and soundness of our finances. To this end, it seems to me the people of the Nation, after adjustments have been made to changed industrial conditions and to the new revenue legislation, must be prepared increasingly to meet the burdens of this war through

just and equitable taxation. If they can be convinced of the plain truth, that the easiest way temporarily and ultimately to bear the financial burdens of war is to meet them as they rise, as largely as possible through taxation, the task will be relatively simple. This is a fact, but not an obvious one. Centuries of unsound traditions and many delusions stand in the way. There is the singular misapprehension that by borrowing, the burden of waging a war to that extent can be shifted to future generations. If this were true, there would be no definable limit to the extent and variety of war the present generation could wage. The truth is that in a Nation like ours, not borrowing abroad, whether control of wealth is secured through taxes on all or in part through loans from the few, the people pay for the war as it proceeds, and that if the books were closed at the end of the war, the Nation would have paid for it. The iron, the steel, the coal, the clothing, the shoes, the lumber, the ammunition, the guns, and the ships secured by the Government are used and destroyed at the time, and, for the most part, can not later be enjoyed. By borrowing, a burden, it is true, is placed on the people after the war, but it is a burden of restitution. A credit relation is set up and an obligation on the part of all is incurred to pay back with interest the wealth the Nation has used. The main fact is that the wealth is taken and consumed by the Nation at the time. The burden is borne while the war is on. As I see it, there are only two really plausible arguments that may be made for resorting mainly to loans—one a psychological argument, namely, that the people do not effectively appreciate the necessity for the war, and would be impatient or resentful; the other, a physical one, that it is difficult in time to devise an equitable measure, to administer it, and to secure revenue promptly. The former argument should appeal more strongly in an autocracy than in a democracy, and especially in one which so quickly perceived the justice and need of a conscription of men. The second applies with diminishing force as the war is prolonged and time is afforded for action.

Producing and Saving.

If it be true that the burden of war is actually borne at the time, then it follows that the capacity of a nation to wage war is measured by its ability to maintain production, and especially to save—to abstain from luxuries, and to stop waste. Hence the importance of our many appeals in this direction.

And let us not be deluded by inflated reports of the rapid growth of our wealth into thinking that we can meet the burdens of this war without further increased production and economy. There is danger of this when figures come from responsible sources without proper interpretation and explanation. In such times as these, statements of wealth in terms of dollars may mean relatively little. The Nation, for instance, has been informed that the value of the 1917 output of corn products is 21 billions of dollars, whatever that is—a sum equal to the total appropriations and authorizations made by Congress in its last session for war purposes. Newspapers have written editorials about it. We are told that no land ever before produced so great farm values, that it is providential that these blessings are heaped upon a worthy people, and that America has the will to place this unexampled treasure at the service of the world. These statements are true, and very misleading. The simple fact is that the actual volume of agricultural things produced, bushels of cereals, bales of cotton, number of hogs and sheep, and some other things, is smaller than in 1915, and that consumers simply generally get much less for a dollar. The same statement may be made in a measure as to the reported statistics of industrial production. It is highly important that these things be seen in the right light, and that they are not permitted to impair the motive for saving.

Now, taxes have this advantage over loans: They more directly enforce economy. It is true that, whether we part with our wealth through taxes or the loan of our savings, we shall have less to spend on ourselves, but it is not always true that we make our loans from our realized savings. Just there is the difficulty. To pay our subscription we not infrequently resort to borrowing beyond our willingness to save, and thereby set in operation processes which may result in undue expansion of credit. Taxation, especially on consumption, more particularly on luxuries, tends more directly to enforce saving, to keep the general level of prices steady, to check investment in nonessential directions, and to release capital and labor for urgent needs. But, after all, large sums must be secured through loans. Borrowing in itself will not necessarily bring about an undue expansion of credit and an advance in prices. It may promote saving. It will do so if payments are made from funds on hand or with savings from current income. It is, therefore, of the first importance to the successful prosecution of the war that the disposition of the people to economize be stimulated. The conception of the war savings certificate plan was, for this purpose, a peculiarly happy one, and its promotion must receive the cordial support and indorsement of financial leaders everywhere.

Patriotism and Profits.

That we have the physical resources to win this war, if they are properly conserved, I entertain no doubt; that we have these in larger measure than any other nation in the world is a matter of common knowledge. We have not yet fully realized the enormous power of the country. If in the sixties, when we were a simple, crude, undeveloped Nation, doing things, relatively speaking, on an "oxcart" basis, with the question yet undetermined whether we were to be one nation or two, we could wage the mightiest war up to that time and issue from it with unrivaled power, what can we not do to-day, with a united people and with immeasurably greater resources, if our spirit is right and our purpose is steadfast? Unless the descendants of the men who followed Grant and Lee are degenerate, there can be no question of the ultimate outcome. It is time for each individual to search his heart and to purge his mind and purpose of selfish motives and for each class in society to think in terms of the Nation rather than in terms of its own interest. It is no time for any class to hug to its bosom the delusion that it possesses a monopoly of patriotism. Human nature is pretty evenly distributed and no little selfishness manifests itself in every direction. Unfortunately there are self-seekers in every group, men who assume the attitude that if they are to make additional efforts to increase production or to serve the country, the Nation must pay them the price. Their patriotism, it is implied, needs to be stimulated. This is impossible because there is no foundation to work upon. I have heard many manufacturers solemnly assert that if the Government wished them to speed up their operations, to extend their plants, or to take additional trouble in any direction, it must guarantee to them an abnormally large profit in addition to the requisite allowance for amortization. One of them recently suggested to me that he was getting weary of the burdens he had assumed, and that if the Government wished him to continue or to undertake new tasks, it would have to induce him to do so by permitting him greatly to increase his profits. What would he or others say of a soldier, of the man drafted into the Army, who protested that for so much he would go to the seaboard, but if the Government wished him to go abroad, it must stimulate him with a 25 per cent increase in his pay, or, if he went to the front trenches, with 50 per cent?

In the words of the President, "Patriotism has nothing to do with profits in a case like this. Patriotism and profits ought never in the present circumstances be mentioned together. It is perfectly proper to discuss profits as a matter of business, * * * but it would be absurd to discuss them as a motive for helping to serve and save our country. * * * In these days of our supreme trial, when we are sending hundreds of thousands of our young men across the seas to serve a great cause, no true man who stays behind to work for them and sustain them by his labor will ask himself what he is personally going to make out of that labor. No

true patriot will permit himself to take toll of their heroism in money or seek to grow rich by the shedding of their blood."

The Individual's Duty.

I can conceive that each individual, no matter what class in society he belongs to or what service he renders, whether he be a manufacturer, a farmer, a laborer, a lawyer, a scientist, or a soldier, will take pains to see that he attains for himself and his operations the highest degree of efficiency and give the maximum service or products to the Nation at the lowest cost consistent with efficient operation and effective standards of living; but it is inconceivable to me that any citizen who dares to call himself a patriot should aim to do less or to seek mere selfish advantage. It is obviously the duty of each civilian to reveal by his conduct the same standards of patriotism, devotion, and sacrifice, if necessary, either of life or property, that we expect from the men whom we send to the front directly to bear the brunt of battle. I am confident that it is in this spirit that most of the people of the Nation are viewing their obligations and that the great body of public sentiment will permit no other attitude to manifest itself in those who are less right minded. There can be no slacking, no turning back. The rights of the Nation must be vindicated and its institutions preserved. Those who would keep the people of the world from going about their business in orderly and decent fashion must be taught a lesson once for all. Guaranties that there shall be no recurrence of such a world calamity as the present must be enforced. A finish must be made once for all to all things feudal, humanity be safeguarded, democracy impregnably intrenched, and the lesson be forced home that the worthy and tolerable national aspiration is to have a clean national household from cellar to attic, and a durable and righteous peace must be secured.

MAY STANDARDIZE LINTERS.

The handling and marketing of cotton linters is being investigated by specialists of the Bureau of Markets, United States Department of Agriculture. Special attention is being given to the different quality of linters and to the practicability of standardizing this commodity. Owing to the great demand for this by-product, oil mills have increased the cutting of linters from about 50 pounds to approximately 150 pounds per ton of cotton seed. On account of its present high price and low quality the mattress, batting, and felt makers, as well as other manufacturers who have used linters in the past, have abandoned this product to a large extent. Practically the entire production of linters is now being used for munition purposes.

NOVEMBER 21, 1917.

The county agent system, as developed by the Federal Department of Agriculture in cooperation with the State agricultural colleges, has demonstrated its great usefulness as a means of promoting the full development of the agricultural resources of the country.

Working in intimate and sympathetic relation with rural people, the county agent is able to secure the application of scientific knowledge and discoveries to the business of the farmer and the home life of country people. In the present war he has been ready to meet the emergency and to concentrate all rural forces and organizations in working out the great problems of food production and food conservation. In recognition of his value as a local leader, Congress has provided funds for the immediate extension of this system to every agricultural county in the United States. State and county councils of defense and all rural organizations can do a patriotic public service by assisting the Government and the State in accomplishing this end.

D. F. Houston

Secretary.

DR. MOHLER PROMOTED.

Appointed Chief of the Bureau of Animal Industry of the Department.

The Secretary of Agriculture on December 10 announced the appointment of Dr. John Robbins Mohler as chief of the Bureau of Animal Industry of the United States Department of Agriculture. Dr. Mohler succeeds the late Dr. Alonzo D. Melvin, who died on December 7.

Dr. Mohler has been in the service of the Bureau of Animal Industry since 1897 and has been assistant chief of the bureau since July 1, 1914. During the long illness of Dr. Melvin, Dr. Mohler performed the duties of acting chief as well as those of chief pathologist.

The Bureau of Animal Industry, in number of whole-time employees, is the largest division of the Department of Agriculture. Approximately 5,000 employees are engaged in its work and are located in every State and nearly every county in the Union. The work of the bureau, generally stated, is to increase and conserve the live-stock industry. The bureau also conducts the Federal inspection of meat and meat products.

Dr. Mohler was born in Philadelphia May 9, 1875. After education in the Philadelphia Central High School, Temple College, University of Pennsylvania, and medical department, Marquette University, he engaged in private practice in Philadelphia in 1896. He entered the service of the Bureau of Animal Industry in 1897 as a field inspector in the quarantine division. Later he was transferred to the meat-inspection division, and in 1899 he was transferred to the pathological division, where he was advanced to the position of chief in 1902.

Dr. Mohler has translated a number of scientific works and is the author of numerous scientific articles on pathology, bacteriology, and meat inspection published in Government publications and scientific periodicals. He is a member of the following societies or committees:

American Veterinary Medical Association—vice president in 1912, president in 1913; United States Live Stock Sanitary Association—vice president in 1910; District of Columbia Board of Veterinary Examiners—president in 1914–15; International Congress of Tuberculosis—secretary of section; International Congress of Hygiene; Society of American Bacteriologists; Veterinary Medical Association of the District of Columbia; American Public Health Association; Society of Experimental Biology and Medicine; Pennsylvania Veterinary Medical Association (honorary); International Commission of the American Veterinary Medical Association on the Control of Bovine Tuberculosis, 1910.

TO IMPROVE STORM REPORTS.

The number of vessels reporting weather conditions over the North Pacific Ocean, where hitherto little information has been available, has been increased materially during the past year, according to the annual report by the Chief of the Weather Bureau. A comprehensive study of the weather over this vast area is being undertaken in the belief that it will add greatly to the knowledge of the origin, development, and progress of the storms entering the western part of the country.

The first reason for having good milk cows on the farm comes from the fact that they provide the cheapest, best, and most wholesome food for the family. Their value is hard to estimate when we consider the amount saved on the bills. Their produce is a superior substitute for many foods necessarily purchased at high prices. In fact, there is no economic way of doing without plenty of good milk cows on the farm.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., DECEMBER 26, 1917. No. 21

FARM BUREAUS POPULAR.

Farmers Eager for Such Organization When Benefits Are Properly Presented to Them.

Any agricultural county in the United States can be organized for county agent work in a short time if accomplishments of farm bureaus and county agents in other counties in the various States are properly presented to the farmers.

This is the assertion of the United States Department of Agriculture officials who have been assisting in the organization of farm bureaus in the Northern and Western States.

More than 700 county agents and emergency demonstration agents are now at work in the 33 Northern and Western States. The increase in agents since emergency appropriations became available was more in two months than the average yearly increase during any of the past four years.

Competent Men in Demand.

County agricultural agent work is conducted by the United States Department of Agriculture in cooperation with the various State agricultural colleges and local organizations representing the farmers of the county in which the agent is located. The county agent is usually selected by a committee representing the county organization, on recommendation of the county agent leader at the agricultural college. There is at present an unusually great demand for men qualified for work of this kind to carry out the plan, adopted under the food production act, of employing an emergency demonstration agent for every agricultural county in the United States not having a regular county agent. This is a part of the National plan to increase the production and conservation of food to meet the war emergency needs.

To Put an Agent in Each County.

Organization of new counties is rapid, especially in States of the central west, several of which have given assurance that there will be a county agent or county emergency demonstration agent in each of their counties by February 1.

Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, and Delaware already have an agent in each county, while New York, Indiana, and Pennsylvania are almost completely covered. Nearly half of the agricultural counties in the Northern and Western States are now being served by a local demonstration agent, and the indications are that the country can be completely covered before the beginning of another crop year.

One of the most gratifying features of the organization campaign in the Northern and Western States thus far has been that most counties taking up the work are arranging for it on a permanent basis—many of them making plans for periods of three years.

County Agents Must Have Thorough Training.

The qualification requirements of agents are somewhat different in the various States. Graduation from an agricultural college is not in all cases required, though training substantially equivalent to a four years' course at such college is usually insisted upon. A considerable amount of farm experience is a universal requirement, and it is preferable that some of this experience should be secured since completing the college course.

Additional information in regard to county agent work and the organization of farm bureaus can be had by writing to your State agricultural college or to the United States Department of Agriculture, Washington, D. C.

WHAT BEEF CATTLE WORKERS DID.

Field agents in beef cattle extension work, according to the annual report of the Bureau of Animal Industry, United States Department of Agriculture, in the last fiscal year gave specific advice to 5,300 farmers; addressed 539 meetings with attendance of 58,786 people; were instrumental in placing with farmers 2,991 breeding cattle, besides 960 hogs, a number of breeding mares, and 1,432 feeder cattle. Direct assistance was given in building 113 silos, and 25 additional live-stock organizations were formed. Demonstrations given included 58 in baby beef, 150 in steer feeding, 42 in cattle pasturing, and over 1,000 in hog raising.

To reduce the losses resulting from improper handling and storage of sweet potatoes, specialists were placed in the regions of large production, and their work, it is estimated, already has resulted in a saving of $3,000,000.—Extracted from Annual Report of Secretary of Agriculture.

NATION'S FOOD SURVEY.

Food Inventory Soon to Be Launched. More Than Three-fourths of a Million Schedules to Be Mailed.

The most comprehensive inventory of food resources in the United States ever made—the war emergency food survey, provided for by Congress—will be started within the next few days, when the first batch of the more than three-quarters of a million schedules or questionnaires to be sent out will be placed in the mails. The Bureau of Markets has been commissioned by the Secretary of Agriculture to carry out the big stock-taking enterprise with the cooperation of other branches of the department. This survey will touch every dealer in food and food materials, every food manufacturer, and every holder of substantial quantities of foods in the country except the family, requiring them to report stocks which they have on hand December 31, 1917. A separate schedule will be sent to a representative number of specially selected homes throughout the country, and upon returns from these an estimate will be made for all homes.

The approaching survey follows a preliminary inventory for a limited number of food items made August 31 last, results of which have been nearly all tabulated.

The aim of the major survey to be begun shortly is to give the Government, producers, dealers, and consumers exact information of the quantities of the various important food materials on hand. It is only with trustworthy figures of existing food stocks as a basis, as was pointed out when Congress provided for the survey, that safe plans can be made for conserving and distributing foods already on hand and for producing the foods needed next season.

Questionnaires to Be Used.

The survey will be made by means of schedules or questionnaires containing questions and blanks for answers in regard to 86 items, covering more than a hundred different foods. These items are divided into 10 general groups: Grains and seeds, grain-food products, meat and meat products, fish, animal and vegetable fats, dairy and related products, canned goods, fresh fruits and vegetables, dried fruits, nuts, and peanuts, and sugar, starches, etc. Answers are to show the quantities of each item on hand and an estimate of quantities, if any, in

transit outward by freight or express, on December 31, 1917, and the quantities that were on hand December 31, 1916. The returns also will show the nature, organization, and size of the business of each dealer. They must be signed by the owner or an authorized official.

Schedules will be sent to all dealers in food materials, all manufacturers of food products, and all holders of such commodities in lots substantially greater than family supplies. Reports, therefore, will be expected from wholesale and retail grocers, bakers, confectioners, and all other dealers in commodities containing food materials; from warehousemen and cold-storage concerns; from commissaries of institutions and commercial and industrial establishments; from exporters; from manufacturers employing any food product in their operations; and from representatives of foreign governments who buy supplies in this country. The Government desires reports even from concerns using foodstuffs as ingredients in products not ordinarily considered food; from bottlers of soda water and similar beverages, and from chewing-gum manufacturers, for example, because of the sugar employed.

Penalties for Failure to Report.

Altogether, more than three-quarters of a million schedules will be distributed. Mailing lists have been prepared to cover the field as fully as possible, but some individuals and concerns who should make report of food materials held by them undoubtedly have been unavoidably missed. The Bureau of Markets, therefore, is asking each such individual and concern that does not receive a schedule by January 2 to write to the Bureau of Markets, United States Department of Agriculture, Washington, D. C., or to any of the many agencies of the bureau throughout the country, for a copy. The local addresses of these agencies are given with each of the three-quarters of a million schedules which are being distributed, and may conveniently be obtained by inquiry of any business associate who has received one of the schedules.

The act of Congress providing for the war emergency food survey fixed a fine not exceeding $1,000 or imprisonment not exceeding one year, or both, as punishment for any individual or concern who wilfully fails to make report when requested, or wilfully reports incorrectly. The Bureau of Markets, however, counts on the full cooperation of the affected trades and industries, and hopes that there will be very few cases in which it will be necessary to enforce compliance through prosecution.

When honestly done, farm cost accounting furnishes a direct and safe basis on which to work out a more profitable business management for the farm.

FEEDING VELVET BEANS.

Specialists Suggest Profitable Ways of Disposing of Popular Southern Crop.

To aid in the proper disposal of the enormous crop of velvet beans grown in the South this season—approximately four times the amount grown last year, which was in turn about four times that of 1915—specialists of the United States Department of Agriculture make suggestions as to the best ways of feeding the beans. They are especially good feed for cattle and hogs, the specialists say, but are not as a rule relished by horses and mules. Use of the beans in rations for sheep can be followed on lines similar to those that have been found satisfactory in cattle feeding.

Grazing Most Practicable.

Grazing is probably the most practicable way for the farmer to feed velvet beans. However, when corn-and-bean fields are to be grazed, all mature beans should first be picked to save for seed or to use for feed during the latter part of winter. Grazing usually begins about the time of the first frost and continues throughout the winter. When the fields are grazed by cattle, hogs should follow them up to pick up the beans that the cattle trample down. Both vines and beans will remain in edible condition throughout the winter; in fact, weathering makes the beans more palatable by softening the pods. Dairymen find that grazing gives the greatest stimulus to milk production in the fall, while beef growers value them more highly for winter grazing.

High in Digestible Protein.

Velvet beans either as green forage or as hay are very high in digestible protein, therefore great care should be exercised in feeding them to live stock, especially when starting stock on feed for the first time. Even after the stock become accustomed to the beans they should be kept in the field only a short time each day until a portion of the crop is consumed, as excessive consumption is a waste of concentrated feed. Such overfeeding will in addition have a laxative effect similar to the effect that cottonseed meal has when overfed. This danger is somewhat offset, however, because of the fact that stock will hesitate to eat the beans for the first few days.

In grazing off corn and velvet bean fields cattle have gained as high as 200 pounds in 90 days, and while they were not finished at the end of this time, they nevertheless made good beef. Hogs similarly fed produce almost as firm pork as if fed corn in addition. It is well, however, to feed some corn if it is desired to produce pork of the best quality.

Results of experiments which have shown the high feeding value of velvet beans are described by the specialists.

Steer-Feeding Tests.

In one feeding test carried on at the Florida station velvet beans in the pod were fed in comparison with other feeds to sixteen 700-pound steers, divided into four lots of four each, for 84 days. Lot 1 received an average daily ration per 1,000 pounds of live weight of 8 pounds of corn, 12 pounds of velvet beans in the pod, and 10 pounds of cottonseed hulls; lot 2, 10½ pounds of corn, 3.8 pounds of cottonseed meal, and 13½ pounds of crab-grass hay; lot 3, 6 pounds of corn, 5 pounds of cottonseed meal, 14 pounds of cottonseed hulls, and 20 pounds of sorghum silage; lot 4, 6½ pounds of cottonseed meal and 25 pounds of cottonseed hulls. The lot to which velvet beans were fed made the high average gain of 2.9 pounds daily per 1,000 pounds live weight for 84 days. Satisfactory gains were made by the other lots, but those of the steers fed velvet beans were the largest and, based on prices of feed for October, 1917, cheapest. The test also showed a saving of $2.48 per 100 pounds of gain by feeding the beans without grinding. It is believed that gains are no greater when the beans are fed as meal rather than whole. However, it is often advisable to soak the whole beans in water a few hours so as to soften the pods before feeding. The only objection to this practice is that if all the beans given at a feeding are not eaten by the cattle they are likely to sour, after which the cattle may refuse to eat them.

At the Alabama station a test was conducted to determine the relative feeding value of cottonseed meal and velvet beans in the pod as the concentrated part of a ration for fattening steers. In this experiment two lots of 20 steers each were used, one lot getting cottonseed meal and corn silage and the other velvet beans in the pod and corn silage. The results showed that 1 pound of cottonseed meal took the place of 2½ pounds of velvet beans, but the velvet-bean lot required only two-thirds as much silage as the cottonseed meal lot. The cost of 100 pounds of gain was $1.84 cheaper when velvet beans in the pod were fed, with cottonseed meal costing $46 a ton, unhulled velvet beans $20 a ton, and corn silage $6 a ton. The gains made by the steers in each lot were satisfactory and careful inspection of the two lots on foot and at the packing houses failed to show any appreciable difference either in the finish of the animals or in the carcasses.

Tests with Dairy Cows.

It was learned at the Florida station that 1½ tons of beans in the pod are equal to 1 ton of cottonseed meal for milk production, and can be produced at a great deal less cost. The Georgia station found that 2,035 pounds of velvet beans were equal to 2,000 pounds of

cottonseed meal for milk production, and that 5½ pounds of velvet beans produced 1 pound of milk as against 5 pounds of cottonseed meal to produce the same amount.

Hog-Feeding Tests.

At the Alabama station a lot of 5 pigs of an average weight of 62 pounds were turned into a field where velvet beans had been grown in corn after the corn crop had been gathered. In addition the pigs were fed a half ration of a mixture of corn meal, 9 parts, and tankage, 1 part. Another lot of pigs of similar weight was fed corn meal and tankage in a dry lot. The pigs foraging the velvet beans made an average daily gain per head of 1.23 pounds for a period of 72 days, requiring 0.38 of an acre of beans and 170 pounds of concentrates for 100 pounds of gain. The pigs in dry lot for the same period made an average daily gain per head of 0.84 pound and consumed 400 pounds of concentrates for 100 pounds of gain. In this experiment an acre of velvet beans grown in corn thus replaced over 600 pounds of concentrates, or, in other words, replaced 10 bushels of corn.

Prices of Velvet Beans.

Velvet-bean meal, at October prices, retailed at about $32 a ton, while whole beans in the pod were selling for about $20 a ton. The whole beans, the specialists say, are practically equal to the meal for feeding. The cost of grinding—$2.50 to $3 a ton—therefore, should be saved, it is urged, by feeding the beans whole. If the beans become too dry and hard for the pigs they may be soaked for 24 hours before feeding.

HOLD COTTON SEED.

Save Liberally Now for Next Year's Crop—Dispose of Surplus in Spring.

In urging cotton growers to prepare for possible emergencies next spring by saving double the supply of seed needed for the first planting, specialists of the United States Department of Agriculture point out that any seed not needed for planting next spring is likely to be as valuable to the oil mills then or the following fall as it is now. The immediate cash loss a farmer may experience through refusing to sell all his seed to the oil mill at present tempting prices will be more than offset by the advantage to be gained next spring in having plenty of seed available for planting and replanting. A bushel of seed may bring the farmer $2 now, but next spring it probably would plant 2 acres, from which a bale of lint and 30 to 40 bushels of seed could reasonably be expected.

Notify Seed Stocks Committee of Surplus.

It is explained that a liberal carry-over of seed, generally, would enable localities not needing to replant next spring to release seed for use in other similar sections where a third or fourth planting may be required because of extreme conditions. Under such circumstances farmers having surplus seed would be helping to solve the problems of other farmers if, instead of selling to the oil mill, they would notify the chairman of the seed stocks committee of the State in which they live as to the variety and quantity of seed they have on hand. In case the name of the chairman of the State committee is not available it will be furnished upon application to the chairman of the committee on seed stocks of the Department of Agriculture, Washington, D. C.

BEST MARKETS FOR CITIES.

Unusual Interest in Farm Produce Centers Among Municipalities.

An inexpensive farmers' market under proper management and regulation can be made a most valuable asset to almost any city, specialists of the Bureau of Markets, United States Department of Agriculture, declare in a recent report of work done by representatives of that bureau to aid towns and cities in meeting marketing problems this season. Abnormal prices of foodstuffs have created an unusual interest in public markets of all kinds, it is said, but because of the high cost of construction work most cities with which the department has cooperated have had to forego inclosed market buildings and start with the less expensive farmers' market.

This type of market not only is the best medium of direct selling that has been devised, but by furnishing a steady and dependable outlet to local producers it develops in a most effective way a greater near-by food production. It is also proving to be the most efficient agency for the distribution of surplus home garden products.

Assistance Given to Cities.

A study was made of the local public markets and advisory aid given in detail to a number of municipalities this year. Suggested rough plans and estimates for market buildings also were furnished to a number of cities, and work has been continued upon the preparation of standard model plans for various types of public markets and produce terminals. Designs have been completed for steel, timber, and concrete sheds for farmers' markets and for a knockdown structure of steel shelter for protection in connection with a retail curb market. An improved layout for an inclosed retail public market building, in which special attention has been given to proper handling of live poultry and fish, has been finished. In connection with the work on terminal markets an efficient plan for a wholesale produce rail terminal, combined with a layout for a wholesale farmers' market, has been prepared. The general principles of this combination market must be adopted eventually, the department specialists believe, if cities are greatly to improve their marketing facilities. Original designs of a refrigerated display and storage counter for meats and fish, and of a sanitary and attractive fruit and vegetable counter for public markets, also have been made and models are being built to be tested under practical conditions.

IDLE ACRES.

Nearly every farm has some portion of it that is either not used at all or is used in such a way as to produce very little. On many farms there are patches of low ground which can not be tilled because they are too wet. Usually when drained these wet areas are the richest land on the farm.

Just at present, when the world is engaged in the most gigantic struggle in its history, the forces of democracy against those of autocracy, the product of these idle acres is needed. This is an excellent time to put them into use. Small patches of wet land can be drained at small expense. Between now and the opening up of spring work there is ample time to do the work. This year the farmer has been able to sell his products at a fair price and has the money with which to buy the tile. Every farmer, part of whose farm is unproductive because it needs drainage, should take advantage of the present opportunity to add to his cropping area by supplying the necessary drainage. These lands will produce more than average farm lands. Every product will help to win the war.

APPLE CEDAR RUST CONTROLLED.

Complete success in controlling cedar rust of apples by the eradication of the red cedars has been shown possible by representatives of the United States Department of Agriculture working in large commercial apple districts. Whenever it is desired to control apple cedar rust in an apple-growing community it can be effectively and permanently accomplished, the specialists say in a recent report, by destroying the red cedars in the winter.

Cedar rust still remains a serious disease in many localities, particularly where the orchards do not form a dominant part of the plant industry. While there are certain phases of this subject that require further investigation, the main problem may be regarded as being definitely solved, it is said.

Bits of damp newspaper scattered over the floor will hinder dust from rising when the room is swept. The wooden or linoleum-covered floors of a well-kept kitchen and pantry harbor very little dust.

AN ARMY OF WORKERS.

Thousands of Women and Girls in South Enlisted in Food Production and Conservation Campaign.

Here are some of the things women and girls in the South have been doing to help the national war program, according to a report of work for the year 1916–17 by officials of the United States Department of Agriculture in charge of home demonstration and canning clubs in the Southern States:

Four hundred and nineteen counties in the Southern States were organized under women county agents, who enrolled and instructed 37,964 girls in the canning clubs, 9,656 girls in poultry clubs, 22,048 women as home demonstrators, and 2,211 women in women's poultry clubs. The year just passed shows a notable increase in demonstrations by women in productive activities such as poultry raising, home butter making, gardening, and canning. Many women, under the supervision of county agents, also carried on extensive work in cooking, making labor-saving devices, and planning improved arrangements of equipment and furniture with reference to more efficient housekeeping.

More Community Clubs Organized.

Many more community clubs have been organized among rural women of the South. In 1915–16 about 250 such clubs were organized. In 1916–17, 1,042 of these clubs held 27,260 meetings during the year with an attendance of 476,366. Thirty-seven egg circles, producing poultry products worth $53,952 have been organized by the women and girls.

Home Gardens More Than Doubled.

War conditions and needs have brought about a great extension of activities along the general lines which the home demonstration workers have pursued for the last seven years in Southern States. For example, the very earnest campaigns of the last year for a home garden on every farm were a part of a "safe farming" program which has been advocated for several years. These campaigns have been extended to the cities, towns, and villages, and it is believed that the number of gardens increased during the last year from 200 to 300 per cent.

An Army of Home Demonstrators.

By July 1, last, 2,450,682 women and girls in the South had been enrolled for demonstration work in food production and conservation. That number did not include women volunteers giving instructions to their neighbors under various schemes of organization. In one State alone, 200,000 women undertook to carry out, without compensation, definite lines of food conservation in their own neighborhoods under the instruction of home demonstration agents. Federations of women's clubs and various civic and church organizations of women also greatly have assisted in the emergency work.

Home Canning a General Practice.

A few years ago canning was done by a relatively small percentage of people in the South. Now, canning is a general practice in many parts of the region, and reports from most of the States indicate that the amount of fruits and vegetables preserved for future use by canning, drying, pickling, and other means is four to five times greater this year than during any previous year. Early in the spring of 1917 the price of tin cans increased to such an extent that their use by the individual canner was practically prohibited. Through the cooperation of the Council of National Defense, the railroads, and the manufacturers of tin cans, the Department of Agriculture was able to perfect an arrangement by which more than 10,000,000 cans were shipped in carload lots from certain factories direct to counties in the South and sold at cost plus the freight and handling charges. The net saving to southern women and girls through this activity was estimated at more than $250,000.

Labor-Saving Devices for the Housewife.

Home improvements or devices were made and installed under the leadership of the woman agencies in the South during the last year as follows: Fireless cookers, 3,290; iceless refrigerators, 2,171; fly traps, 5,025; kitchen cabinets, 180; floor mops, 119; wheel trays, 292; ironing boards, 486; water systems, 361; shower baths, 57; houses screened, 1,270; miscellaneous articles made, 4,032; rest rooms established, 101; butter paddles, 635; butter molds, 624; thermometers, 241; shotgun cans, 214; barrel churns, 180; butter workers, 79; number of pounds of butter made under demonstration methods, 92,649; number of girls reporting in canning club work, 21,172, of which 7,058 made demonstrations in cooking-club products and 11,384 made bread demonstrations. By November 1, 623 State and county scholarships had been won as prizes by girls. These club girls made 23,767 caps and aprons, 3,875 uniform dresses, 2,341 towels, 1,776 holders for use in demonstrations, and 400 miscellaneous articles of sewing. The total number of containers of fruits and vegetables packed by women and girls under demonstration methods alone was 5,144,747, with a total value of $956,669. The total number of winter gardens cultivated by the girls and women was 7,649.

Food Conservation Campaign.

The enrollment of women and girl demonstrators in the South by July 1 last included 51,075 girls in canning clubs, 13,466 girls in poultry clubs, and 35,506 women. The number of organized counties had increased to 518, and the total number of women agents was 556. In the annual meetings held early in 1917, these agents were given special training in the phases of food conservation demanded by conditions of this season, including drying, brining, and storing of vegetables and making bread with partial wheat flour substitutes. The planting of additional areas of peanuts and soy beans for use in bread making was made a part of the campaign for increased food production. Following the instructions given by the department and college specialists to county home demonstration agents in the annual meetings, the weekly reports of these agents show that in the month of May, 1917, special information along the lines mentioned was given to 237,307 people in 6,083 meetings, and that in addition 24,801 personal conferences were held. In the preservation of perishable foods the most notable development was the widespread use of drying to supplement canning of fruits and vegetables.

UNCLE SAM TO USE MOVIES.

Official Motion Pictures Will Be Used to Increase Food Production.

Official motion pictures bringing home the vital importance of increased food production will be shown by the United States Department of Agriculture in hundreds of regular motion pictures theaters throughout the United States. The first releases, which are to be handled under an agreement with the Universal Film Manufacturing Co. through its exchanges, will be made early in December. The first film will show activities in the national forests, which are important sources of timber and water supply and also afford grazing for a large number of cattle and sheep.

The second release, which will follow in about two weeks, will show what children through the pig clubs are doing to increase the supply of pork. Other selections from the department's 40,000 feet of official subjects will make clear various features of food production, the raising of meat animals and horses, and will deal with home activities such as poultry raising and the canning and drying of perishable products.

The department laboratories are at work on a number of other popular films specially designed to make clear to city as well as rural populations, problems of food production and to show them ways in which they can cooperate effectively to feed the Nation and the allies.

800,000 ENROLLED.

Membership of Boys' and Girls' Clubs in Northern and Western States Doubled.

More than 800,000 boys and girls in Northern and Western States, as members of agricultural and home economics clubs, are enrolled for war service in gardening, canning, bread-making—war bread, too—poultry raising, and other emergency enterprises, according to a recent report of officials of the United States Department of Agriculture in charge of this work.

Total Enrollment.

The total enrollment in regularly organized clubs for the year ending June 30 last was 403,636. In addition, about 400,000 boys and girls were enrolled in the war emergency projects. These were from the cities and were not classified as regular club members. The regular members were organized into the following clubs, the figures showing the number of clubs, not the members: Corn clubs, 945; potato clubs, 1,217; home garden clubs, 3,070; canning clubs, 2,152; garden and canning clubs, 776; mother-daughter clubs, 270; poultry clubs, 832; pig clubs, 1,037; baby-beef clubs, 158; bread clubs, 643; sewing clubs, 1,250; handicraft clubs, 76; sugar-beet clubs, 161; home cooking clubs, 755; other miscellaneous clubs, 448. The total number of clubs of all kinds was 13,790.

Twenty-Nine States Cooperate.

Twenty-nine Northern and Western States cooperated with the Federal boys' and girls' club service during the year ending June 30, 1917, according to the report. Seven hundred and fifty-nine counties in the North and West now have the junior extension work thoroughly organized into club groups and on a club-project basis. Eighteen agricultural and home economics projects were carried out cooperatively. Eight States had written project agreements with State institutions like departments of education, normal schools, etc. Eighteen States had written project agreements with county organizations and institutions for doing club work.

For the year ending last June, 1,124 paid leaders were working in connection with the boys' and girls' club work. In addition to these there were 9,748 volunteer club leaders.

Demonstrations Popular.

One hundred and sixty cooperative club leaders last year conducted 1,534 demonstrations in home canning and food conservation. At these demonstrations there was an attendance of 20,860 club members, 53,565 visiting men and women, and 14,152 boys and girls other than club members—a total of 88,577. The club leaders visited 12,698 club plats.

The number of club members enrolled during 1916 was 198,759. Of this number, 59,236 members completed all work, including making a report of the season's activities to the State club leader. However, 85,324 members actually did the work, although a part of this number failed to make complete reports at the close of the season. The 59,236 members completing all the work produced $922,766.73 worth of products during the season at an estimated cost, exclusive of overhead supervision, of $332,836.07, leaving a net profit of $589,930.66. These figures include payment to the members for time expended in their work. A total of $157,304.75 was expended for local county, State, and national overhead supervision for club work. This is a supervision cost of 79 cents per club member enrolled, and $2.65 per club member making report on the completed season's activities.

FARM-LABOR SUPPLY.

More Efficient Plans Formulated for Solving the Problem Next Season.

The experience of the present year in dealing with the problem of supplying labor for America's farms has been valuable, according to the annual report of the Secretary of Agriculture. It was early apparent, the Secretary states, that in certain sections there would be a marked shortage of farm labor; that, on account of enlistments in the Regular Army and through the operation of the draft law, difficulties would be experienced in many sections, and that the situation called for constructive action. The task was presented of making the labor remaining on farms more effective, of securing fuller cooperation among farmers, and of placing on the farms urban and rural labor not heretofore fully or regularly employed.

Departments Cooperate.

The Departments of Agriculture and Labor and other agencies, immediately after the outbreak of war, undertook to furnish assistance, and the War Department held definitely in mind the thought of lightening the burden as far as possible by not calling to the colors those essential for leadership and direction. Under the pressure of the first draft it was difficult to work out satisfactorily the underlying principle of selection, but the operation of the new arrangement recently announced by the War Department should remove many of the difficulties previously encountered.

Under the provisions of the food production act 38 farm labor agents have been appointed and they will cooperate with the Department of Labor and State officials in dealing with the farm labor problem. The whole situation was canvassed at a conference in St. Louis on November 9 and 10, and more efficient plans were formulated for next season.

Organization an Important Problem.

"The problem of the organization of labor remaining in agriculture is of the highest importance, and it is essential that if possible it be so perfected that there may be produced in this emergency as much as was formerly produced by the whole number of laborers and if possible a greater quantity," the report says. "Whether resort in the future must be had to more drastic action on the part of the State and Federal authorities will depend upon the necessities of the case. Conscription of labor for industrial purposes would necessarily present many difficulties. Powerful influences are operating to bring about the release of labor and capital from less essential enterprises and their diversion into more urgent undertakings. These will become increasingly compelling as the situation develops. They will be aided by the growing realization on the part of the people generally of the necessity of curtailing expenditures on nonessentials and of redirecting labor and capital into vital industries."

NEW FARMERS' BULLETINS.

Screw-Worms and Other Maggots Affecting Animals. (No. 857.)

The Use of Windmills in Irrigation in the Semiarid West. (No. 866.)

The Muskrat as a Fur Bearer, with Notes on Its Use as Food. (No. 869.)

Grains for Western North and South Dakota. (No. 878.)

Irrigation of Orchards. (No. 882.)

Grains for the Utah Dry Lands. (No. 883.)

Fleas and Their Control. (No. 897.)

Laws Relating to Fur-Bearing Animals, 1917. (No. 911.)

The Application of Dockage in the Marketing of Wheat. (No. 919.)

HOUSE FLY SURVIVES WINTER.

Experiments on the overwintering of house flies, says a report of the Bureau of Entomology, United States Department of Agriculture, lead to the conclusion that in the latitude of Washington as well as farther South the house fly overwinters in the larva and pupa stages. The fly was found also to breed continuously during the winter in heated buildings where there was food for the adult flies and materials in which the eggs could be laid and in which the larvæ could develop.

COOKING SOY BEANS.

Recipes for Preparing Dried Beans for the Table—Economical and Highly Nutritive Food.

Soy beans belong to the class of foods known as the legumes, which are familiar in one form or another to everyone in the United States. The white, or navy, beans are used largely in the North; cowpeas are more familiar in the South, and the red, or kidney, beans in the Southwest. Lentils, peas, and black beans are also legumes and so, too, are peanuts.

As specialists in the Office of Home Economics point out, the legumes, as a class, are very rich in protein, a substance needed for body-building purposes. The varieties of protein, though similar, differ in their chemical make-up, that of meat, milk, and eggs being usually described as "perfect" because it is entirely suitable for use in body building. The protein of common cereals and at least some legumes, on the other hand, has not all the parts necessary to make body protein. To add milk to such foods, as we so often do in planning meals, is an easy way of making sure that food meets the body needs as regards the kind of protein. For such reasons it follows that it is desirable to use legumes to reduce the amount of meat, milk, and eggs eaten, but not to replace them entirely. The legumes are, therefore, more correctly called "meat savers" than "meat substitutes." As savers of meat, however, all the legumes, and particularly soy beans, have a very high value, as the following figures show.

As Sources of Body Fuel.

Yellow soy beans, the variety most commonly used in America, are about three-eighths, or 38.5 per cent, protein and would have a fuel value not far from 2,000 calories per pound, if all material in them were completely digested. It is safe, probably, to estimate that in the case of all the legumes about eight-tenths is digested. This makes the figures for soy beans 30 per cent of digestible protein and the fuel value 1,600 calories per pound. The corresponding figures for navy beans are 16 per cent of digestible protein and about 1,300 calories per pound.

When soy beans sell for 10 cents per pound and navy or white beans at 30 cents, a person gets about five times as much protein for a given sum of money and four times as much body fuel in buying soy beans as in buying navy or white beans.

Soy Beans Rich in Fat.

A given sum of money spent for soy beans at 10 cents per pound brings about five times as much protein and six or seven times as much body fuel as if spent for round of beef at 30 cents per pound.

Besides protein, most of the legumes when ripe contain considerable starch and little fat. We like combinations of starch and fat, and for this reason legumes are cooked with fatty substances like salt pork or bacon, or are served with oil. Because of the starch they stick together more or less when cooked.

Soy beans, on the other hand, contain no starch when they are perfectly ripe, but are very rich in fat, resembling peanuts more than other common legumes. For this reason they need no added fat, a fact which few people realize. It is wasteful to bake soy beans with pork or to serve them with oil. These substances are added, to be sure, partly for their flavor, but it is wiser to flavor soy beans with a little onion, tomato, or pimiento, which supply no fat. Because they contain no starch, soy beans remain separate after they have been cooked. For this reason it is quite desirable to serve them with tomato sauce or to cook them with a little rice, or to contrive in some way to add a starchy substance. Because of their high fat content and compact texture, soy beans do not cook up so readily as navy beans.

Using Dried Soy Beans.

Dried soy beans should be soaked overnight or for an equal length of time in the day, then drained, and cooked slowly in water until tender. The use of one-half teaspoon of soda for each quart of beans helps to make the beans tender. The temperature should be kept below the boiling point, or at what most housekeepers call the "simmering" point. Like other dried legumes the cooking can be economically done in a fireless cooker.

Unless soda has been added the water in which the beans are boiled can be used for soup. It resembles beef stock both in appearance and in taste. Chopped turnips, carrots, and onions can be added to it, or it can be flavored with tomatoes. Other ways of using it, such as adding macaroni, rice, or barley, will occur to the housekeeper.

Baked Soy Beans.

1 quart soy beans.
2 tablespoons molasses.
1 level tablespoon salt.

Pick over the beans and soak them overnight or an equal length of time by day. Pour off the water and cover with fresh water to which one-half level teaspoon of soda has been added. Cook just below the boiling point until tender. Pour off the water, put the beans in a baking dish with the salt and molasses. Cover with boiling water and bake slowly three or four hours, or until soft. Keep covered except during the last hour.

Boiled or Baked Beans and Tomatoes.

Either baked or boiled beans can be served with tomato sauce. The sauce may be made out of tomato juice, thick or thin, or out of a combination of tomato juice and soy-bean liquid. It should be seasoned with a little onion and, when convenient, with chopped green or red peppers. To each cup of hot juice add a level tablespoon of flour mixed with a little cold water for juice. Season and pour over the beans.

Soy-bean Loaf.

1 pint cold boiled beans.
1 cup bread crumbs.
2 tablespoons tomato catsup.
1 egg.
1 tablespoon finely chopped onion.
Salt and pepper.

Combine the ingredients. Form into a roll and bake. Serve with a savory sauce. The following has been found satisfactory.

Creole Sauce.

1 tablespoon fat or finely chopped salt pork or bacon.
1 tablespoon flour.
1 cup stewed tomatoes.
1 small onion.
½ cup chopped green peppers.
Salt.

Cook the tomatoes and onions together. Heat the fat, add the flour, and cook one or two minutes, being careful to brown. Add the tomatoes and cook until the mixture thickens, strain it, and reheat with the chopped peppers. Add salt.

Soy Beans and Rice.

1 pint soy beans.
2 tomatoes, or
½ cup stewed tomatoes.
2 level teaspoons salt.
1 cup rice.
1 slice onion.

Soak and boil the beans until tender. Cook the tomatoes with the onion. Strain, add the liquid in which the beans have been boiled and the salt. Cook the rice in this liquid, adding more water, if necessary. When the rice is soft combine with the beans and reheat.

Boiled soy beans can be put through a strainer or meat chopper and made into a thick soup, or can be seasoned and served with meat. The strained beans can be used in sandwiches. For this purpose they should be seasoned with lemon juice or vinegar, or mixed with a little finely chopped celery or cabbage.

Like all dry legumes, soy beans can be used with meat in making stews. In this way a little meat can be made to give the flavor to a dish of high food value. The attractiveness of this dish will depend upon the skill with which it is prepared and seasoned. Meat should be carefully browned, and highly flavored vegetables, like tomatoes, carrots, onions, etc., may be added. It should also be remembered that no fat is needed in this dish.

COOPERATION IN WAR WORK.

How the Department Is Assisting War and Navy Departments.

As an indication of the assistance which the bureaus of the Department of Agriculture have rendered and are rendering to the

War and Navy Departments and to other branches of the Government in connection with war problems, the annual report of the Secretary of Agriculture cites the following:

Inspection of Foods.

The Bureau of Animal Industry is cooperating in the reinspection of meats and meat food products at 27 naval stations and at various Army camps, cantonments, forts, and other places. The dairy specialists of the department have investigated local situations and made suggestions to insure sanitary milk supplies for the Army cantonments and naval stations and also have inspected large quantities of butter for the Navy. Supplies of vegetables purchased and loaded on the naval supply ships are being inspected by representatives of the Bureau of Markets. The Office of Home Economics has studied the rationing question for the Army, Navy, and Coast Guard Service. The Bureau of Chemistry has prepared specifications for Army and Navy foods and has analyzed products offered for inspection. This bureau also has assisted in standardization of Army and Navy food supplies and is conducting research investigations on the antiseptic qualities of some important compounds.

Camp Sanitation.

The Bureau of Entomology has placed its experts, as well as all information on camp sanitation in its possession, at the disposal of the Medical Corps. The Bureau of Soils has cooperated with the War Department in investigations relating to fixed nitrogen and sulphuric acid. Experts of the Office of Public Roads and Rural Engineering have been detailed to assist the War Department in road building at the 16 cantonments.

Forestry Work.

The Forest Service has given assistance to the War and Navy Departments and to other national agencies in locating new sources of wood and in seasoning the product, has assisted in the organization of a regiment of engineers for forestry work abroad, and is now cooperating with the War Department in the organization of a second regiment. The Weather Bureau, in addition to furnishing weather information to the Army and Navy, has assisted the War Department in the organization of its aerological observation work and of a regiment for gas and flame service.

LARGE OATS YIELDS.

Reports Indicate Largest Acre Production in Mountain and Pacific States.

The Bureau of Crop Estimates conducts an annual inquiry as to the largest yields per acre of various crops produced on single fields or plats in different parts of the United States.

An advance statement of the largest oats yields reported for the year 1916 indicate that the largest yields of that crop are produced in the western Mountain and Pacific States.

Although the bureau has faith in the general reliability of the reports published below, it does not vouch for the absolute accuracy of the figures quoted. Nevertheless, because of the widespread interest in maximum or possible yields as distinguished from average and usual yields, and because also of the well-known tendency of large-yield reports to become exaggerated, considerable time and effort are expended toward substantiating the many reports received, the endeavor being to publish none whose approximate accuracy has not been verified and vouched for, at least by the farmer producing the crop.

For the year 1916, the largest reported yields of oats thus far so verified are as follows (bushels of 32 pounds): 142 bushels per acre from 3 acres in Eagle County, Colo.; 127 bushels per acre from 3 acres in Grand County, Colo.; 120 bushels per acre from 22 acres in Clackamas County, Oreg.; and 120 bushels per acre from 9 acres in Lemhi County, Idaho.

COUNTY AGENTS IN SOUTH.

Demonstration Work in South Grows Rapidly During the Last Year.

That the county-agent plan of carrying agricultural information to the farmer is firmly established as a satisfactory system in 15 Southern States is shown in a review by officials of the United States Department of Agriculture of progress made during the last calendar year. A report of this work recently made public shows the status of this rapidly developing agricultural organization in the South during 1916, and also discusses some of the problems which are being met in the effort to increase this service in accordance with the country's emergency agricultural needs. The confidence of the States in the county-agent plan is shown by the fact that most of the legislatures in the South are making liberal appropriations to aid in its support.

Number of Extension Workers.

There were employed in the 15 Southern States during the year 860 regular county agents, 28 assistant county agents, 31 boys' club agents, and 66 colored men agents for work among colored people. Each State also has a director of extension and a State agent or assistant director in charge of the work of the county agents. Women engaged in the home-demonstration work numbered 576. Of these, 13 are State agents in charge of the work in their respective States, 41 are assistants and district agents, and 513 county women agents and 7 colored home-demonstration agents.

Increase in Community Organizations.

Progress in organizing the county agents' work in the South this year was gratifying, officials of the Department of Agriculture say. The last annual report shows the formation of 1,654 community organizations of farmers, with a membership of 44,548. The report for the present year shows an increase to 2,508 organizations with a membership of 78,660. This report does not include cooperative organizations not formed by county agents, even though they gave active support and assistance to the county representative and served in the capacity of a local community organization. Such associations include local granges, farmers' unions, and church and civic organizations of various character. It is estimated that 200,000 farmers are enrolled in all these community organizations which are assisting county agents.

Since this report was made there has been a great increase in this work. At the present time the total number of agents is approximately 2,200, consisting in part of 980 county agents, 815 county home demonstration agents, and 85 negro agents (men) and 70 women.

DEMONSTRATIONS SHOW PROFIT.

Actual money profit on 11,000 demonstrations conducted by county agents in the Northern and Western States in the fiscal year that closed June 30, 1917, was more than $3,000,000—more than double the cost of the 419 agents in this area to the Federal Government, States, counties, and individuals.

These figures include only immediate results that could be computed in dollars and cents. No attempt has been made to measure general influence on agriculture nor to determine how many farmers were encouraged by the demonstrations to introduce improvements.

For example, in Maine, 32 farmers are known to have copied a silage demonstration, while 12 farmers built or rebuilt their poultry houses after a demonstration house had been built in their town. In Penobscot County, Me., more than 400 farmers are known to have put in practice some feature of the demonstration work illustrated on a neighboring farm.

For the 17 years, 1900–1916, estimates of the cotton crops made by the Bureau of Crop Estimates, United States Department of Agriculture, were 1.2 per cent less than the crops subsequently reported by the Bureau of the Census.

TEST COTTON SEED.

Department Urges Testing Now for Germination Where Doubt About Damage Exists.

Frost damage in northern sections of Georgia and Alabama and in Tennessee and Virginia may have rendered much of the cotton seed produced there this year unfit for planting, according to a statement issued by the United States Department of Agriculture, in which growers are urged to exercise care in providing for next year's seed supply. Where frost was known to have injured part of the crop a safe plan would have been to save only seed from bolls that fully matured before they froze, the statement says. If there is now any doubt about the extent of the damage, it is urged that germination tests be made. If the tests show poor germination, either the seed should be replaced with seed having a higher percentage of germination or the rate of planting next spring should be increased to make up the deficiency. It is important, the specialists say, that this deficiency be determined now in order that more seed can be reserved if necessary. In order that farmers may be prepared for emergencies, the department is urging that twice the amount of seed required for a single planting be saved now.

Save Good Planting Seed.

Farmers who now have surplus quantities of good planting seed would be rendering patriotic service in their communities, the statement adds, by getting this surplus into the hands of other farmers instead of selling it to the oil mills. Also, growers needing better seed should make an effort now to locate farmers with surpluses of good stock. The seed stocks committee in each State is a medium through which farmers who have seed for sale and farmers who wish to buy seed can get together. The department specialists also urge farmers who have only limited quantities of pure seed to make every effort to preserve the supplies and to get maximum increases in seed next year, using special care in storing, planting, and cultivating.

CONTROL THE DOGS.

Marauding Curs a Menace to Sheep Raising in New England.

During a recent visit to New England it was noticed that numerous pastures that formerly supported flocks of sheep and lambs were now deserted and were becoming overgrown with weeds and bushes. A little inquiry produced the information that sheep-killing dogs were now so numerous that no flock of sheep was safe from their attacks unless surrounded by a dog-proof bulwark. Two or three decades ago sheep were profitably kept on many of the hills and in numerous stretches of woodland where the nutritious grasses and the luxuriant browsing which flourish so naturally upon the limestone soils of New England kept the flocks in a thrifty growing condition. The rigorous climate of winter in that latitude did not affect the sheep adversely, if they were provided with shelter under which they could keep dry.

Vagrant Dog a Menace.

The owners of these flocks were occasionally obliged to shoot some marauding cur, but public sentiment at that time supported them in the protection of their sheep. Now, however, while support has not been wholly withdrawn, the dogs have become so numerous that the authorities are almost overwhelmed. If the farmers of New England could be assured that their sheep would be allowed to feed unmolested at the present day, numerous flocks would quickly be purchased. They have unexcelled pasturage for sheep during the summer months and would willingly make provision for their care during the winter. The prices which wool, mutton, and lamb now command are sufficiently remunerative to justify anyone who is the possessor of idle grassland in New England in purchasing a flock of sheep. But some local legislation will first be necessary which will recognize the fact that a vagrant dog is a menace to the progress of the community and providing a penalty for those who insist upon owning dogs without keeping them under proper restraint. Dogs should not be allowed to wander away from their owner's premises or leave their owner's control, as otherwise they will become a public nuisance. The owner should be held financially responsible for the damage done by his dog, because of the wanton destruction of the wool and meat that are so greatly needed in the present times of war scarcity.

PEAR BLIGHT DAMAGE REDUCED.

The great pear blight outbreak which began in 1914 has been materially reduced as far as apples in the Eastern States are concerned, according to a recent report of progress on the study of this problem by specialists of the United States Department of Agriculture. Considerable attention on the part of department specialists has been devoted to service work in the eradication of this disease and the department also has cooperated in work in Idaho and Texas in controlling epidemics on apples and pears.

WORK OF BOYS IN SOUTH.

More than 100,000 boys in the South who enrolled in agricultural clubs during 1917 endeavored to grow corn, peanuts, potatoes, grain sorghums, cotton, and other miscellaneous farm crops, pigs, calves, sheep, and poultry, according to information and advice given them by State, district, and county agricultural specialists, school officials, and business men.

In addition to the regular enrollment of 100,000 in boys' agricultural clubs of the South, 20,000 were enrolled to assist in meeting certain emergencies incident to the war. A large number of members already have been enrolled in wheat clubs for 1918, wheat, rye, and oat clubs being organized wherever the growing of these crops is thought to be practicable.

The average yield obtained by corn-club boys in Alabama, Arkansas, Georgia, Mississippi, Oklahoma, South Carolina, and West Virginia, in 1916, was 44.4 bushels to the acre. This was less than the average obtained for the three years preceding, because of the unfavorable weather conditions of the past season. One hundred and forty-six boys made over 100 bushels of corn to the acre.

Boys' pig clubs, according to the report of the Federal specialists, have made purebred pigs common in parts of the South where formerly a well-bred hog was scarcely known. Thousands of purebred pigs have been distributed among the boys with excelleut results. Reports show that the average profit made by members during the last year where grazing crops were used was $22.18, and where grazing crops were not used, $11.25. The costs per pound of grain varied from 3.6 cents in Georgia to 6 cents in Oklahoma.

The use of agricultural club work as a home project for school credit by teachers in the public schools of the South has increased during the last year. In some States credits for graduation are being given for club work. Community clubs are being organized throughout the territory under local leadership. Approximately 2,500 of these were organized during the year. Short practical courses in agriculture for club members have been provided in nearly all the States. Boys attending these courses usually are prize winuers in local contests and have their expenses paid. Many boys have been inspired by club work to continue their studies in agricultural colleges. There are a number of county agents who received their first training in agriculture in such clubs.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1917

WEEKLY NEWS LETTER
UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., JANUARY 2, 1918. No. 22

THE FARM LABOR PROBLEM.

By DAVID F. HOUSTON, *Secretary of Agriculture.*

The farm-labor problem has presented, and continues to present, many difficulties. It is sufficiently difficult without the added complications which arise from the unrest and apprehension created by the utterances and writings of misinformed and in some instances of mischievous persons. Not a few statements are being made which not only are not conducive to a satisfactory solution, but which, on the contrary, are responsible for additional unrest and misdirection of effort.

This is one of two or three subjects to which the department has given more thought than to any others, not only since this country entered the war but for many months prior to that time. There has been before the farmers the question of retaining a sufficient number of year-round skilled laborers, and also of meeting the urgent needs at the planting and harvesting periods. In very many sections of the Union difficulties in both directions have been experienced. This has been particularly true of communities where there has been great industrial activity incident to preparations for the Army and Navy. Farmers in the neighborhood of cities where there has been great redirection of labor and capital, and also where the cantonments and other special enterprises have been under way, have been greatly embarrassed. Obviously, a nation can not engage in a struggle such as the one which this country is making in defense of its rights and for freedom in the world without disturbances of many kinds, especially of labor, without inconvenience, and without calling for sacrifices from every class of society. Mere complaint will serve no useful purpose. Constructive thought and action alone will help.

In some respects the situation may not be quite so acute another year. Naturally, the disturbances are much more violent immediately after a great shock has been given the industrial system. This Nation had been organized on a peace basis. When it entered the war it was necessary not only to create vast additional facilities and machinery, but also to provide on an enormous scale for the operation of the new establishments and of those previously existing. Many shipyards had to be expanded and others had to be created. Large cantonments had to be built, and built quickly. In every direction there were urgent demands for great expansions. Furthermore, it was necessary to have an Army, and this necessarily caused additional labor drains and dislocations. In the haste of the first draft it was impossible to work out a satisfactory classification of labor with reference to the national needs.

However, it is well to recognize that the situation will continue to be difficult and that a satisfactory solution will require the best thought of the Nation and the fullest and most complete cooperation of all agencies. To this end all plans which give any promise of real results must be carefully examined and put into effect so far as they are feasible.

That the department and other agencies of the Government fully appreciate the seriousness of the situation is indicated by the action taken to attempt to furnish relief. Even under the pressure of the first draft, the War Department held definitely in mind the thought of lightening the burden so far as possible by not calling to the colors those essential for leadership and direction. With the fuller time at its disposal, that department, which has recognized from the beginning the necessity of not unduly disturbing any essential industry, has worked out a system of classification of the men subject to the draft which contemplates the placing of skilled farm labor engaged in necessary agricultural enterprises in class 2, assistant or associate managers of necessary agricultural enterprises in class 3, and heads of necessary agricultural enterprises in class 4. The operation of this new arrangement should remove many of the difficulties previously encountered and, in reasonable measure, meet the demands of the situation.

Several months before we entered the war, the Government was giving the farm-labor situation definite attention. In former years, the Department of Agriculture, in cooperation with the Department of Labor, sought to render, and did render, assistance to farmers in a number of States in securing seasonal labor. In conjunction with state agencies, these departments have effected the transfer of considerable numbers of laborers from communities where the load had passed to others where the need was urgent. This was done especially in the years of large production and, in some cases, from 20,000 to 40,000 laborers were transferred to particular States.

After the entry of the United States into the war, the thought of the Department of Agriculture, in connection with the Department of Labor, was very definitely directed to the problem of farm labor. The matter was thoroughly discussed at the conference held in St. Louis on April 9 and 10 with the agricultural representatives of the various States. It was also referred to in my letter to the Senate of April 18, 1917.

One of the first steps taken by the Department of Agriculture was to select and station in each State, in touch with the State agencies, the best available man the department could secure (1) to make surveys of farm labor conditions; (2) to bring about fuller cooperation in the utilization of labor among farmers in the same community; (3) to assist in shifting labor from one community or one State to another; and (4) to bring into service kinds of labor not heretofore fully or regularly employed in farming operations, such as boys of high-school age who knew something about farming, and to do many other things. After the food-production bill was passed on August 10, an allotment of uearly $100,000 was made to extend aud develop the work of the department in this direction. Only recently the department held a conference in St. Louis of its farm-labor representatives and of State agencies cooperating with them to consider the work which had been done up to that time and to formulate more efficient plans for the future. Some hint of the activities of the department along this line is given in my annual report for 1917.

Some persons seem to be promoting the suggestion that farmers as a class should be exempted from military service and that no person from this class should be permitted to serve in the Army, and criticism has resulted because it has not been acted upon. It would be unfair to the farmers of the Nation even to entertain the thought that they would be willing to have the rest of the population do all the fighting in this

struggle in the defense of our rights and for world freedom. The farmers themselves as a whole would resent the intimation. If farmers were exempted as a class, obviously others would feel the injustice of such action. It is unlikely that any responsible body of opinion would sanction the proposal.

If we put our minds to the task and attempt to deal with it in a constructive way, there are many things which can be done to furnish relief. The Department of Agriculture, of course, will continue to do everything in its power to aid in the solution of the difficult problem. The most promising lines of effort seem to me to embrace the following:

First. A systematic survey of the farm-labor situation in order to ascertain the possible needs of farmers and to determine ways of meeting them. The department, before the beginning of the next crop season, through its agents stationed in the various States and in cooperation with the Department of Labor and the State councils of defense, will make such a survey.

Second. The promotion of fuller cooperation in the utilization of labor among farmers in the same community.

Third. The further development of machinery for assisting in the transfer of labor from sections where the seasonal pressure has passed to regions where additional help is urgently needed.

Fourth. Making available labor which heretofore has not been fully or regularly utilized in farming operations, including boys of high school age who have had experience on the farm.

The farm labor representatives of the department will continue to devote all their time and energies to these tasks and they will keep in close touch with appropriate State and other agencies.

Fifth. The releasing of men for agricultural purposes, so far as possible, by replacing them with women and by diverting labor from relatively nonessential enterprises are matters which demand serious consideration. Conscription of labor for industrial purposes, of course, necessarily would present many difficulties. Powerful influences are operating, however, to bring about the release of labor and capital from less essential enterprises and their diversion into more urgent undertakings. These will become increasingly compelling as the situation develops. They will be aided by the growing realization on the part of the people generally of curtailing expenditures on nonessentials and of redirecting labor and capital into vital industries.

Sixth. Steps to see that any able-bodied men who are not now doing a full and useful day's work shall be fully and regularly employed. This, of course, is a matter primarily for consideration by State and municipal authorities.

Seventh. The largest possible production and fullest use of farm labor-saving machinery. The department has actively interested itself in securing priority for raw materials used in the manufacture of farm implements, and also in securing favorable consideration at the hands of transportation committees to provide facilities for moving the materials to the manufacturers and the completed products from the manufacturers to the distributors and also to the farmers. Both those dealing with priorities of materials and those dealing with priorities of transportation have evinced a complete willingness to assist. This is indicated by the fact that the priorities committee of the War Industries Board gave raw materials needed for farm implements a position of preference over all articles except those urgently required for military and naval purposes, and that the transportation committee took steps to secure the prompt movement of the raw materials and of the manufactured articles. This matter is still receiving the earnest attention of the department with a view to see what further action can be taken to make certain that an adequate supply will be available at reasonable prices.

If there are any other fruitful and practicable lines of effort which will aid in the solution of the problem, they should, of course, be followed. The department has been in constant touch not only with representative farmers and farmers' organizations, but also has had frequent contact with the State commissioners of agriculture and the experts of the land-grant colleges. It receives many hundreds of letters daily containing all sorts of suggestions from many parts of the country. As has been indicated, it has special machinery throughout the Union for the purpose of receiving suggestions and furnishing assistance.

Many plans are proposed which are utterly impracticable, but any constructive suggestion always has received and will continue to receive the most careful consideration. The whole subject, involving industry as well as agriculture, is being given serious attention by the Council of National Defense through its various agencies which are actively at work along many lines to formulate constructive plans.

PIG CLUB WORK GROWING.

Many More Boys and Girls Help to Increase Nation's Meat Production.

Despite lack of pigs in nearly every State, the fiscal year that ended June 30 brought big increases in the membership of boys' and girls' pig clubs, with consequent greater influences on meat production, according to the annual report of the Bureau of Animal Industry, United States Department of Agriculture.

Thirteen specialists in as many States supervised the work of 21,603 members, a membership increase of 96 per cent. This work was carried on in Alabama, Arkansas, California, Georgia, Indiana, Kentucky, Louisiana, Massachusetts, Nebraska, North Carolina, Oklahoma, Oregon, and Texas. The number of members reported showed an increase of 148 per cent and now is nearly 30,000.

Financial aid by bankers helped largely to make the clubs successful. As an instance, bankers in Arkansas last year furnished purebred pigs to 1,800 of the 2,100 pig club members on 6 per cent interest-bearing notes. As the notes run from 12 to 15 months the pigs themselves will pay for their cost.

That the pig clubs are influencing meat production is indicated by plans in several States to have clubs send carloads of fat hogs for competition at fairs or stock shows, after which they are to be marketed cooperatively.

DAIRY COWS ON EVERY FARM.

That Is Department of Agriculture's Recommendation for Southern Territory.

To have dairy cows as a part of the equipment on every farm, enabling tenants to become self-supporting throughout the year and at the same time maintain desirable soil conditions, is a plan recommended by the Bureau of Animal Industry, United States Department of Agriculture, among the landowners of the South. The plan is accompanied with an active campaign for feed production; as a result a marked increase in the acreage of legumes, particularly velvet beans and peanuts, has been shown.

Every effort is being made by field men of the department to aid in bringing in a sufficient supply of good cows to establish dairying and to fix the type of good cows in the minds of the farmers. The readiness of bankers to help finance the purchase of dairy cattle is an indication of how well established the industry has become through cooperative and State work.

STUDY DISEASE OF PECANS.

That the pecan rosette, regarded by southern pecan growers as the most serious menace to the industry, is not caused by parasites or other organisms, but is a nutritive trouble induced by deficiency in soil moisture and plant food, is the conclusion of specialists of the United States Department of Agriculture based on a study of this disease. Experiments along this line show the disease has been practically eliminated from a large number of trees on the test plats. Results of a striking character have been obtained in the experiments fer controlling the disease, and the methods will be announced as soon as they have been perfected.

WORK OF COUNTY AGENTS.

At the suggestion and under the supervision of county agents, 120,000 adult farmers in the South conducted demonstrations in one or more lines of farm work during the season 1916. Probably ten times that many were directly influenced to practice better methods of farming as a result of these demonstrations. At the field meetings or schools held in the demonstration field it is the custom to invite the neighboring farmers to take part in the discussions and thus to extend the agents' influence. During the season of 1916 demonstrations were conducted as follows: Corn, 543,889 acres; cotton, 333,615 acres; tobacco, 3,588 acres; small grains, such as wheat, rye, oats, barley, and so on, 282,074 acres; various hay, forage, and cover crops, 271,269 acres; summer legumes planted for hay, seed, soil improvement, and other purposes, 474,479 acres; potatoes, 15,193 acres; and old pastures renovated, 149,239 acres.

The extent and the variety of the advice and assistance the southern county agent is called upon to give is indicated by the following information taken from the county agents' reports: Through the influence of the agents farmers were induced to remove stumps on 179,382 acres to better prepare the land for the use of improved implements; 218,989 acres were drained by tile and ditch and 463,856 acres were terraced; home gardens were established or improved on 26,754 farms; the number of pieces of improved farm machinery and implements purchased through the influence of county agents was 83,389; and orchard work of many kinds was done, including spraying, pruning, and other necessary treatment, the demonstrations in this work involving 544,658 trees.

Considerable attention was given by county agents in the South to promoting livestock production, 4,367 new silos having been constructed to aid in this work, and 2,829 dipping vats erected for the control of livestock pests. Farmers instructed concerning the proper care of farm manure numbered 45,154, and the estimated saving during the season approximated 10,000,000 tons. It being necessary to supplement the use of farm manures and the green crops for soil-improvement purposes with commercial fertilizers, 127,131 farmers were instructed in the mixing and use of the commercial product and 1,117 communities were aided by agents in purchasing commercial fertilizers on a cooperative basis, resulting in an estimated saving of $290,766.

In addition to the greatly increased yields obtained on demonstration areas, many thousands of farmers were shown conclusively how to increase their producing power and place their farms on a better business basis. As a result, plans of operation are better balanced than before, according to Department of Agriculture officials; more farmers understand the necessity for rotations, the maintenance of soil fertility, and what an important part live stock plays in their plans; and they have had demonstrated to them the increased value of purebred cattle, hogs, and other live stock. The growth of sentiment along these lines is indicated by the following figures, showing the number of live stock brought into county-agent territory through the influence of the agents: Purebred horses and mules, 3,202; purebred and high-grade dairy cattle, 22,299; purebred and high-grade beef cattle, 32,709; purebred hogs, 29,636; purebred sheep and goats, 17,554. Poultry demonstrations involving an aggregate of 163,330 fowls were conducted. Live-stock diseases and pests received increased attention, 2,488,426 horses, cattle, hogs, sheep, and goats having been treated during the last season.

County agents made 809,714 visits during the year, traveling 3,590,567 miles by rail, team, motor car, or otherwise. During the season the county agents received 373,015 official telephone or personal calls at their homes or offices. They held 11,708 field meetings, which were attended by 132,355 persons. They aided in distributing 840,635 bulletins of the Department of Agriculture and of the State agricultural colleges and experiment stations. The county agent, looked upon as a local leader, frequently is called upon to assist in arranging and holding agricultural meetings. During the last season county agents assisted in arranging for 837 extension schools or short courses, with an attendance of 130,761.

GROWING THEIR OWN FOOD.

Territories Increase Crop Production—Less Dependent upon Mainland.

To make 2,000,000 people in Alaska, Hawaii, Porto Rico, and Guam less dependent upon the mainland of this country for their supplies of food was one of the war emergency projects undertaken by the United States Department of Agriculture. Through its experiment stations in these Territories important results already have been obtained.

Experiment Stations Distribute Seeds.

Porto Rico, which formerly imported more than $800,000 worth of beans annually from the mainland, now is in a position to export this product. The Alaska stations have greatly increased the areas sown to grains and now are able to meet increased demands for seed grain locally adapted. The Guam station is distributing larger quantities of seeds and plants for cultivation by the natives with prospects of an increased production of food. Hawaii has materially increased its production of food crops.

That work to increase food supplies in the Territories was urgently needed is evident from the fact that the annual imports of such products into Hawaii and Porto Rico alone amounted to some $20,000,000 a year before the war. Many of the articles imported can be grown successfully in these islands. As a result of the emergency efforts of the Department of Agriculture stations, imports of a number of food materials already have been noticeably reduced.

Agricultural Conditions in Virgin Islands.

A representative of the Federal Department of Agriculture investigated the agricultural situation in the Virgin Islands this season and suggestions as to how the islands may become more nearly self-supporting have been made. The specialist detailed to this investigation had had an experience of more than 13 years in Porto Rico, where agricultural conditions are similar, and his suggestions should prove of value if put into practice in the new possessions. The only crops found cultivated to any extent were sugar cane and Sea Island cotton, the yields of which are low compared with other West Indian islands. The representative found that there was an almost complete absence of fruit and vegetables on the markets, indicating very limited supplies of locally grown food materials. Stock growing is followed to some extent, but improved stock is needed, better forage plants should be introduced, and more attention is needed to the proper handling of stock, dairying, and other farm enterprises.

CREAMERY HELPS FARMERS.

The creamery at Grove City, Pa., operated under the management of the Dairy Division, Bureau of Animal Industry, United States Department of Agriculture, is cited in the bureau's annual report as an excellent example of the influence that a well-managed creamery has upon a locality. When it was opened, in 1915, it had only 54 patrons the first month, but at the close of the last fiscal year it had 579 patrons, from whom 378,000 pounds of butterfat were purchased during the year at a price well above that generally prevailing. In addition to the manufacture of 425,084 pounds of butter, the products included 139,585 pounds of cottage cheese, 1,504,025 pounds of condensed skim milk, and 5,441 pounds of casein.

SELF-FEEDER FOR HOGS.

Most Rapid as Well as Economical Gains Made by Allowing Animals to Help Themselves.

The quickest, easiest, and most economical method of fattening pigs, with the least expenditure of grain and labor, is through the use of self-feeders. A self-feeder consists of a hopper large enough to hold a supply of feed sufficient to last several days and a trough below it into which the grain flows as the pigs eat it. Hogs do not overeat, as might naturally be supposed, when they have free access to these feeders, but a number of tests conducted by the United States Department of Agriculture and various State experiment stations show that with the ingredients of a good ration constantly before them they will make gains more rapidly and economically than when fed by hand. Results of experiments setting forth these facts, together with plans for constructing self-feeders, have been published in Farmers' Bulletin 906, The Self-Feeder for Hogs."

Feeding Tests.

On a Government experiment farm at Beltsville, Md., 18 grade Berkshire pigs were put on a 70-day feeding test in the spring of 1916. The pigs were kept in a dry lot and fed a fattening ration of corn meal, middlings, and tankage. Nine were fed by hand three times a day, while nine had access to self-feeders. The self-fed pigs gained more rapidly and ate more feed, but less in proportion to the gains in weight, than the pigs fed by hand. In fact, the self-fed pigs required less feed per 100 pounds gain.

In another test three lots of 5 grade Berkshire pigs each were pastured on rye. One lot was self-fed on corn meal and tankage, and made slightly more rapid gain, but required more feed per 100 pounds gain than another lot self-fed on shelled corn and tankage. Both these lots made more rapid and economical gains than did a third lot which was hand fed on corn meal, middlings, and tankage.

These tests are borne out by results obtained at a number of State experiment stations. In all, nearly 600 pigs have been used in tests at these stations and the results show clearly that more rapid gains are obtained with the self-feeder than by the best hand-feeding methods, partly owing to the larger daily consumption of feed per head and partly owing to the more efficient use of the grain fed.

Saves Time and Labor.

The marked success of the self-feeding system is largely due to the fact that the hogs may eat an abundance of those feeds which will nourish them to the best advantage. By this plan the average farmer will have as good results as the most expert hand feeder, and the results will be obtained at much less expense of time and labor. All the tests referred to show that the increased feed consumption and the more rapid daily gains are not made at the expense of efficient use of feed.

Adapted to Use Any Kind of Grain Feed.

The self-feeder may be adapted to the use of any kind of grain or feed, although shelled corn and ground feeds are most commonly used. Ear corn may be fed by this method, if the hopper is of sufficient size to hold enough feed for several days without refilling. In order that the self-feeder may readily be adapted to different kinds of grain, it should be constructed with some means of regulating the opening through which the feed passes. Care should be taken to see that the self-feeders are always supplied with each feed, for if one part of the ratien is missing the pigs will naturally eat an increased amount of any other available and in such a case will make very poor use of it. The grain feeds may be mixed or placed in different compartments and fed separately. The latter plan is more successful, for the pigs have been found to be able to balance their own rations as their appetites demand.

SWEET-POTATO LEAF-FOLDER.

Entomologists Identify and Tell How to Control an Injurious Southern Insect.

The mysterious caterpillars which inflicted serious damage on sweet-potato fields in southern Texas during the fall of 1916 have been identified by entomologists of the United States Department of Agriculture. They identify the new pest, known as the "sweet-potato leaf-folder," as *Pilorocis tripunctata*, an insect first observed as an enemy of sweet potatoes in Louisiana in 1914. In a new publication of the Department of Agriculture, Bulletin 609, "The Sweet-Potato Leaf-Folder," Thomas H. Jones and M. M. High of the Bureau of Entomology describes the life history of the insect and experiments made to control its depredations.

The insect gets its name from the behavior of the larva, which constructs a shelter by fastening together leaves of the sweet potato or portions of the same leaf with silk threads which it spins. When young the larva eats small irregular holes in the leaf, and later as it increases in size consumes more of the leaf, sometimes devouring all but the larger veins and midrib. The minimum period required for the life cycle of the insect was found to be about 26 days in studies made at Baton Rouge, La. In that latitude there were four and sometimes five generations a year. The winter months apparently are spent in the last larval stage within a cocoon at or near the surface of the soil.

Experiments conducted by the Bureau of Entomology indicate that the larvæ can be killed readily by spraying the foliage with either arsenate of lead or arsenite of zinc at the rate of 1 or 2 pounds (powder) to 50 gallons of water. Two parasitic flies have been reared from the larvæ, and the spined soldier bug has been found to be predacious upon the larvæ. In Texas the "jack-daw," or boat-tailed grackle, also feeds upon this pest.

GRADING SEED CORN.

All seed corn should be graded before the ears are shelled, says the United States Department of Agriculture, because shelled corn can not be easily graded. The grading is done to secure uniformity of size and shape in each lot of kernels, so that they will be dropped evenly from the corn-planter when it is set for special lots of seed.

If the seed ears vary as to size of kernel they should be separated into two or three grades, according to the type of grain they bear. These grades should be shelled separately—always by hand and not by a mechanical sheller—and then tested in the corn planter. After finding the numbers on the planter plates which drop the kernels most uniformly, each lot should be numbered with corresponding figures. All this should be done when work is slack in the winter and before the spring rush begins.

Be sure there is enough for two years' plantings. You may need it yourself if the first planting is drowned out; and there never was a time when there was not a demand for seed corn known to be good.

FACTORS IN SMUT CONTROL.

A solution of the problem of controlling bunt or stinking smut of wheat in the Pacific Northwest depends largely upon four factors, according to a summarized report of progress on investigations of this disease by specialists of the United States Department of Agriculture: The general practice of crop rotation, the abandonment of summer fallowing, the general use of smut suction fans on threshing machines, and consistent and general seed treatment.

It may be possible to distinguish in the field the two species of wheat bunt, the report says. Observations in Michigan seem to confirm the impression that one of these appears in the field as a "high smut," while the other breaks out lower down and is called a "low smut."

NEW HARDY STRAWBERRY

"Everbearing" Varieties Extend Season in North for This Popular Fruit Until Frosts Occur.

Strawberries in almost continuous supply from early summer until frosts occur are now a possibility for truckers and home gardeners in the Northern States. "Everbearing" varieties developed by growers in reeent years from long-fruiting plants of short-season types and from hybrids have passed a successful trial period, and are now recommended by specialists of the United States Department of Agriculture for planting. The best varieties and cultural practices—somewhat different from the eulture of common strawberries—are described in a publication which has just appeared from the Department of Agriculture, Farmers' Bulletin 901, "Everbearing Strawberries."

Resistant to Disease.

Besides their long fruiting season, some of the new varieties are very hardy and resistant to disease. The southern boundary of the territory in which the everbearing types can be grown most successfully is described by the specialists as the northern parts of Virginia, Kentucky, Arkansas, and Kansas. South of these limits points may be found where they will grow with some degree of suceess, it is said, but they are not definitely known to thrive there.

The two leading varieties of the everbearing type are the Progressive and the Superb. The Progressive has been found to withstand the winters of the Middle West better than most other varieties except the Dunlap, one of its parents. The Superb also is hardier than most varieties of strawberries. A remarkable characteristie of both is that if blooms are killed by frost they soon flower again. This character makes them especially valuable for sections subject to late spring frosts, which often destroy the crop in ordinary sorts.

Bear Fruit Almost Continuously.

It is explained that the new everbearing sorts, which are sometimes confused with other varieties showing abnormal behavior, differ in that they bear fruit under favorable conditions more or less continuously from the season of the ordinary varieties until frost. Certain varieties of the everbearing type which have been set for a year bear a fair crop during the regular strawberry season. For the period immediately after this early summer crop the amount of fruit obtained is small. In August, September, and October it becomes larger, and under favorable conditions the late summer and autumn yield may equal or exceed the early summer crop. They are not well adapted to sections having long droughts except when irrigation can be supplied.

Plants of the everbearing varieties should be set at the same time as those of other varieties—as soon as the ground is in condition in the spring. Growers of the Progressive and Americus varieties, which have rather small fruit, agree that a more fertile soil is required for them than for the ordinary sorts, in order to increase their size. Another reason for the need of a fertile soil is that this type of strawberry requires a larger supply of moisture than do the sorts which produce only plant growth after the early summer fruit crop.

HOW BOYS GROW PRIZE PIGS.

Motion Pictures Show Methods of Department for Increasing Pork Supply.

As a means of helping to increase the pork supply, the United States Department of Agriculture has just released to the motion picture theaters, through one of the large motion picture companies, a film showing the work of the boys' pig clubs which the department is organizing in all parts of the country in cooperation with the extension divisions of the State agricultural colleges.

How the Boys Are Taught.

The film shows methods of instructing farm boys, and in some instances girls, who have joined the agricultural clubs, how to raise better pigs and the methods used by club members in carrying out instructions. The first lesson taught in the film story is that it eosts no more to feed and care for the pig of carefully selected stock than the scrub, while the results in meat produced is greatly in favor of the well-bred animal. The picture shows further how to feed and care for the pigs, how to protect them from disease, and how to shelter them from the inclemency of winter and the heat of summer. The results of wise selection and intelligent care are shown in the well-groomed, fat, healthy porkers wearing the prize ribbons they have won at county and State fairs.

The first pig club was organized in Louisiana in 1910. Now approximately 45,000 members are enrolled in the pig clubs throughout the country.

Possibilities of Hog Production Demonstrated.

"The practicability of producing rapid increase in the pork supply and of bringing greatly increased profits to the farmers who produee it are lessons which the Bureau of Animal Industry wishes to call to the attention of all farmers," says an official of that bureau, "and it has been found that education of the farm youths is bringing about valuable indirect education of their elders in the possibilities of more profitable hog lots.

"It has become urgently important, as a war measure, that this country greatly increase its production of foodstuffs, especially of meats and fats. They are needed for our people at home, for our armies abroad, and for the armies and people of the entente nations. While the Department of Agriculture is working hard to increase our supply of beef, effective increases in the number of the country's cattle is necessarily slow, while much more rapid results can be obtained in the production of pork, as well as mutton."

The pig club film is the second of a series of releases of official films of the United States Department of Agriculture to be made bimonthly, according to the terms of a contract which the Secretary of Agriculture has made with the film company which is to distribute them. Arrangements are also being made for the distribution of these films by the department itself to educational institutions.

MORE HOGS SHIPPED TO FARMS.

There has been a large increase this fall in the number of hogs shipped to farms and ranches for breeding and feeding, instead of being sold for slaughter. This movement of "stockers and feeders" from the large markets of the country was four times as heavy during October this year as during the same month last year, and for September and October combined the movement was three times heavier this year than last. These hogs that have gone back to farms and ranches instead of being slaughtered will, of course, increase the pig crop next year. The movement is considered a definite indication of some of the results of the campaigns of the United States Department of Agriculture, State colleges, and other agencies, waged in all the leading hog-producing States with the object of bringing about the saving of breeding stock this winter.

Figures of the Bureau of Markets of the United States Department of Agriculture show that from the large markets of the country (with the exception of Chicago and Omaha, from which figures are not now available) 65,210 stocker and feeder hogs were shipped during October this year, while only 14,246 moved from the same markets in October, 1916. During September this year 23,457 stockers and feeders were shipped, as compared with 12,879 during September, 1917. This gives a total of 88,667 for September and October this year and 27,125 for the same period last year.

DESTROY ANIMAL PESTS.

Prevent Loss of Grain, Orchard, and Field Crops—Bureau of Biological Survey Will Help in the Work.

Every year ground squirrels, rabbits, rats, mice, and other small animals, working unseen by the farmer, and each doing its bit by eating grain, damaging orchard trees, or injuring truck crops, exact an annual toll aggregating millions of dollars. This loss is largely preventable, as shown by the work of the Bureau of Biological Survey of the United States Department of Agriculture. In North Dakota, for example, the bureau conducted an organized campaign against ground squirrels, in cooperation with the State extension service. The squirrels on about 4,500,000 acres were poisoned and practically exterminated. The result was a saving in the year's crops valued at more than $1,000,000. The squirrels were destroyed by poisoned bait distributed near their runs and feeding places at a cost, including labor, of from 5 to 7 cents per acre.

Campaigns along the same lines, under project agreements, have been started in Montana, Idaho, and Oregon in cooperation with State extension services, and are being planned for other States. Demonstrations of methods have been made on a large scale in Nevada and California, where increased interest is being developed in organizing systematic campaigns for the extermination of ground squirrels.

Rabbits Destructive.

Serious depredations by jack rabbits upon wheat, barley, oats, alfalfa, and other growing crops and stacked hay necessitate continued efforts for their control in Western and Southwestern States. In a single county in Oregon about 75,000 were poisoned at a cost of less than one-tenth of a cent each.

In many of the Eastern and Central States the cottontail rabbits have done considerable damage in orchards and on grain farms. In New York State the European hare, which was introduced some years ago, has increased and is spreading to adjoining States, and is likewise doing extensive damage to orchards. Measures are being taken to control these pests.

Prairie Dogs Destroyed.

Prairie dogs have been a serious menace to many farmers in the West and Southwest. The bureau has conducted successful campaigns to destroy them. In some of their tests as many as 300 dead prairie dogs have been counted in an alfalfa field within 24 hours after distributing grain poisoned with only 1 ounce of strychnin. The success of the work of the bureau has induced extensive cooperation by farmers and stockmen, and their work has resulted in a large saving in growing crops, and good yields have been secured on large areas where, in many cases, the prairie-dog infestation has previously rendered the production of crops an almost hopeless undertaking.

Mice Cause Large Annual Loss.

Pine mice, meadow mice, and deer mice are responsible for a large percentage of the annual toll, and particularly in the Eastern States have wrought serious havoe in orchards, gardens, and truck and potato farms. Many melon-producing districts also have suffered from them. In one county in Virginia the horticultural commissioner estimated a loss of $100,000 to orchards from apple trees killed by pine mice during the year. House rats and mice are notorious destroyers of field crops, stored products, and poultry, and the initial steps have been taken to launch a nation-wide campaign against them.

STATES ENACT ROAD LAWS.

Legislatures Comply with Requirements of Federal Aid Road Act.

"Probably the most significant result thus far of the operation of the Federal aid road act," says the Secretary of Agriculture in his annual report, "has been the enactment by a number of State legislatures of effective road laws.

"Legislative action in some States was necessary to meet the requirements of the Federal act, but many of the States have gone further and have recast their highway policies entirely. All the States have assented to the provisions of the act—42 by their legislatures and 6 by their governors. Thirty-three had a highway department within the meaning of the act upon the date of its approval. The remaining 15 have since enacted legislation creating highway departments which comply with the terms of the law. The highway departments in 18 States have been greatly strengthened, specific appropriations to meet the Federal funds have been made by 10, and comprehensive maintenance legislation has been enacted in 9 States. Forty-two States now have satisfactory maintenance laws. Nearly all of the States have submitted definite schemes or programs of work for the entire five-year period covered by the act, or for the greater portion of it. The formulation of carefully prepared plans for the full period in advance of construction tends to prevent wasteful and haphazard undertakings."

Under the provisions of the act 40 States have submitted 183 projects involving approximately 1,730 miles. Of this number 139, embracing 1,182 miles and calling for an estimated expenditure, including Federal, State, and local funds of $7,947,114.50 have been approved. These projects involve Federal funds to the extent of $3,455,573.76, or 23.75 per cent of the total allotment, $14,550,000, to the various States for the fiscal years 1917 and 1918.

The expenditure of State funds in 1916 aggregated $40,969,000. It is estimated that the expenditure of State funds in 1917 will reach approximately $60,000,000, or an increase of nearly 50 per cent. These funds are distinct from local expenditures and indicate an advance in State participation in highway work.

NATIONAL FOREST TIMBER SALES.

Sales of national forest timber in the fiscal year 1917 were more than double those of 1916, according to the annual report of the Forester. The total amount sold exceeded 2 billion feet and is valued at more than $3,715,000. During the same period about 727 million feet were cut and removed, for which the purchasers paid $1,507,303 into the Federal Treasury. The largest sales were made in Oregon, where about 688 million board feet were disposed of.

In addition to the timber sold, approximately 113 million board feet, valued at almost $150,000, was cut under free use permit by more than 41,000 settlers living near the national forests and depending on the forests for firewood and building material to improve their homesteads.

The timber business on the eastern purchase areas, while still small as compared with the western forests, showed a decided increase, the report states. More than three times as much timber was sold and more than twice as much cut as in 1916. The material disposed of, it is pointed out, is largely of poor quality, and its removal will improve the forest growth.

CREAMERIES INCREASE IN SOUTH.

Development of creamery work in the Southern States has been gradual but progressive, says the annual report of the Bureau of Animal Industry, United States Department of Agriculture. Creameries in the seven States where field men are cooperatively employed now number 112, a net gain of about 20 per cent in a year. Communities were encouraged to organize creameries when conditions were at all favorable.

Cheese factories also have shown a gain in the South, until at present there are 34 in the mountain sections. Twenty-six were organized in the last year. Every factory established has been successful and has shown a rapid growth. Cheese factories furnish outlets for milk in localities far distant from railroads and centers of population.

EXPERTS STUDY DIET.

Department Specialists Supply Information Regarding Rational and Economical Use of Foods.

To furnish exact data on which food advice can be based and to supply information regarding the rational and economical use of foods is the war work of the Office of Home Economics, United States Department of Agriculture. Special attention is paid by the experts in this office to the problems of the housekeeper in using food and food combinations in such a way that the diet will be satisfactory and adequate and yet effect a saving of the foods which now need to be saved. Some phases of these investigations are brought out in a recent report of this office to the Secretary of Agriculture.

Studies on the digestibility and uses of culinary and table fats are one important line of work. Special attention is given to vegetable fats, such as nut oils and fruit-seed oils which are little known or used, and which may be properly called agricultural by-products, to determine whether they are suited for use in the home for food purposes. Bulletins reporting these experiments have been issued or are being prepared for publication.

Use of Cereal Foods.

Continuing the work on the digestibility and uses of cereal foods, attention has been paid particularly to wheat flour made by the old-fashioned milling process, and to the use of grain sorghums—kafir, feterita, milo maize, kaoliang—and buckwheat, as well as to the influence of fineness of grinding and of preparation on the food value of these and other grains. From the work with milo and proso the general conclusion drawn by the specialists is that while bread from these meals would contribute to the protein of the diet, the grains used were decidedly important as a source of carbohydrates. Studies of home canning of animal and vegetable products, preparation of food for the table—particularly the use of fruits and vegetables dried by domestic methods—the extended use of potatoes as a starchy food, and the preparation of various grains in palatable forms as substitutes for wheat have been other features of these investigations. How housewives can plan rationally chosen economical meals has been suggested by the home economics specialists in a number of nontechnical Farmers' Bulletins. These have dealt with the body's food needs, cereal foods, foods rich in protein. There are also Farmers' Bulletins on food for young children and on school lunches.

Cooperation with Other Departments.

In carrying on its work the office of Home Economics works with other bureaus and with other departments. In cooperation with the Food Administration and with the Bureau of Education of the Department of the Interior, 10 lessons on food conservation were prepared. One of the lessons discussed the fundamentals of an adequate diet, and the others deal with food-conservation problems. Other cooperative work on food carried on during the year included studies of emergency rations for the United States Army and Navy and of general questions of rationing for the Revenue-Cutter Service. With the Bureau of Fisheries of the Department of Commerce studies were made on the preparation of fish for the table, its digestibility, and its preservation by domestic methods.

Other projects undertaken by this office deal with investigations looking to prolonging the period of usefulness of clothing and textiles, problems of cleaning and care of household equipment, and to studies of household labor.

MEAT FOR ARMY AND NAVY.

Inspectors Watch Manufacture and Observe Camp Supplies to Guard Against Unwholesome or Poisoned Foods.

Redoubled precautions to prevent food made unwholesome by adulteration or through tampering by enemies from reaching American soldiers and sailors are being taken by the meat-inspection service of the United States Department of Agriculture. Every pound of meat or meat products which reaches the mess tables of Uncle Sam's fighting forces is inspected at least twice—first at the establishment where it is packed or prepared and finally by trained inspectors of the department stationed at the camps.

Must Be "Inspected and Passed."

All meats and meat products for the Army and Navy are obtained only from inspected establishments, and every consignment must bear the Government stamp, "Inspected and passed." This stamp means that every step in the process of preparing the meat for consumption from the time the animal is killed up to and including the time it is placed in the cans and sent out from the establishment where it is packed has been under the constant supervision of trained inspectors of the department. At the camps all products are reinspected, and laboratory analyses of samples show if the foods have been made injurious by tampering.

Inspectors Make Personal Examination.

Twenty-six hundred inspectors are stationed throughout the country at establishments which prepare meat and meat food products for interstate and foreign commerce. These inspectors personally examine the live animals, the carcasses, and all parts thereof at the time of slaughter. They continue to inspect and to reinspect the the meat and meat products throughout the different stages of preparation. All meat which is unsound, unhealthy, unwholesome, and otherwise unfit for food is condemned and destroyed in the presence of the inspectors. Some 70 inspectors of the service have been detailed to the various military and naval camps.

POULTRY FEEDS TESTED.

In feeding experiments conducted by the Bureau of Animal Industry, United States Department of Agriculture, a ration without wheat or wheat products fed to Leghorn pullets gave an average annual production of 147.3 eggs. Cottonseed meal used to replace half the beef scrap in the mash has given good results and has had no bad effect on the quality of the eggs. Where cottonseed meal replaced all the beef scrap the results were unsatisfactory both in number and quality of eggs. Mussel meal has not proved as good a substitute for beef scrap as fish meal, which, to the amount of 25 per cent of the mash, has not affected the flavor or the taste of the eggs.

FISH MEAL A DAIRY FEED.

Fish meal, a by-product of the fish cannery, when used in a ration for milk production proved to be worth from 20 to 25 per cent more than cottonseed meal and had no ill effect upon the flavor of milk, says the annual report of the Bureau of Animal Industry, United States Department of Agriculture. Potato silage was found to be as palatable as corn silage and of equal feeding value; peanut meal from unhulled nuts was inferior to cottonseed meal, and 128 pounds of potato meal equaled 100 of corn meal as a feed for dairy cows, according to experiments conducted by the bureau.

SAVE CONDEMNED MILK.

Several cities have adopted the plan recommended by the Bureau of Animal Industry, United States Department of Agriculture, to denature rather than destroy milk condemned as unfit for human consumption. The denatured milk is now fed to live stock as a part of the national campaign for the prevention of waste.

The cream separator should be thoroughly washed and sterilized each time it is used. Particles of milk or cream left in the separator act as a "starter" to hasten the souring of the cream.

GRAZING ON FORESTS.

Increasing Demands for Permits to Graze Live Stock on National Forest Ranges.

A continued increase in the demand for permits to graze live stock on the national forests and the necessity of going ahead with the work of developing the forest ranges to the utmost are emphasized by Acting Forester A. F. Potter in the annual report of the Forest Service. The settlement of the public domain brings new applicants for grazing privileges with each succeeding season, while the continued high prices received for meat, wool, and hides are an incentive for the older permittees to endeavor to increase their numbers. "New permits for an increased number of animals and an advance in the grazing fees made during the year brought the total receipts from grazing up to $1,549,000."

Stockmen Suffered Severe Losses.

The winter season of 1916–17 was the most disastrous the range stockmen of the West have known, Mr. Potter states. There have been years when the local losses were heavier but never when the losses were so general in every range State. As a result of continued severe weather throughout the winter months and a scarcity of hay, which was hard to get at any price, stockmen suffered severe losses. The lamb crop for the entire West was probably 15 to 20 per cent below the average, while the calf crop was considerably below normal. Because of the shortage of feed on the open range, the national forests were opened to grazing in advance of the regular season and several hundred thousand sheep and cattle were admitted to the forest ranges.

Number of Live Stock Greatly Increased.

The number of cattle on the forests the past season was nearly 200,000 greater than in 1916, and the number of sheep more than 200,000 greater. This increase, it is stated, was due to a more intimate knowledge of the forage growth and the carrying capacity of the ranges and to efforts made to increase production of live stock to meet the emergency food needs of the country.

About 1,100,000 acres were examined by the grazing experts of the service during the year. The information gained will, the report says, aid in raising the number of live stock on the ranges to the maximum, without excessive damage. Light grazing for three years has resulted in excellent recuperation of a large area of grama grass range on the Jornada Range Reserve. On the high mountain lands of the Manti National Forest in Utah, it was found that erosion and decrease in soil fertility following overgrazing materially lengthen the period necessary for the grass to "come back."

Improved Methods Increase Calf Crop.

A study of the methods of herding goats has resulted in an improvement in the handling of these animals on the range. On the Jornada Range Reserve a calf crop fully 10 per cent above the average was saved from a breeding herd held on a fenced range under improved methods and given a small amount of supplemental feed. From another herd, fed an average of 50 pounds of cottonseed cake per head and given still better care, the calf crop exceeded the average by more than 20 per cent.

On some of the Utah, Montana, and California forests tests were made which further demonstrated the advantages of the "bedding out" system of handling sheep over the old method of close herding with dogs. Advance was made in the methods of salting cattle and in showing the value of well-distributed watering places. On a number of forests demonstration tests were made of eradication of the poisonous tall larkspur. In every case, the report states, the losses from poisoning were reduced to an extent which more than justified the cost. Minor investigations were also started to work out methods of getting rid of other poisonous plants.

EXTENSION WORK EXPANDED.

Full development of the plans for further war-time expansion of the extension service of the United States Department of Agriculture will mean at least one demonstration agent—possibly two, a man and a woman—in nearly every agricultural county in the Nation and a woman in each of the large cities to give advice on production, conservation, and utilization of food products. This is a statement in the annual report of the Secretary of Agriculture, David F. Houston.

Through provisions in the food production act for development of the extension service more than 1,600 emergency demonstration agents had been appointed by the end of October, making a total of approximately 5,000 cooperative extension workers. Nearly 750 additional counties are cooperating with the department under the food production act in employing county agents. Men county agents total now about 2,000, many district agents are supervising their activities, and about 1,300 women home demonstration agents are at work. These agents not only are performing the normal and emergency demonstration and educational work but also are assisting in other special governmental activities, such as the Liberty Loan and food conservation campaigns.

CLEAN SEED GRAIN.

Profitable Occupation for Winter Days—Provide Supply of Good, Clean Seed for Next Year's Crop.

Winter days, when farm work is slack, can be well utilized in cleaning and grading the small grains for spring sowing, according to a statement just issued by the Seed Stocks Committee of the United States Department of Agriculture. This work should all be done before the spring rush in preparing the land and sowing the seed. Wheat, oats, barley, and flax for seeding can all be improved by running the seed through the fanning mill at least once to remove the weed seeds, chaff, broken straws, and light, shrunken kernels. The cleaned grain will run through the drill or other seeding machinery more evenly and thus insure a more uniform stand than can be obtained from uncleaned grain. Cleaning grain also eliminates most of the weak and diseased kernels, many of which may not grow at all, or if they do grow are likely to produce small, weak plants. Uniformly large, plump kernels germinate more evenly, produce stronger plants, and yield more than ungraded grain containing small, weak kernels.

Cleaning the grain also removes a large part of the weed seeds it contains. The preparation of the land for seeding destroys many seeds that are in the soil and thus helps to keep weeds in check, but the value of this work is largely lost if foul seed is sown. Weed seeds sown with the grain have the best of conditions for germination and growth, and the plants produced from them compete strongly with the grain plants throughout the season.

Although the small grain of the 1917 crop, except in North Dakota and Montana, is mostly of excellent quality for seed, yet it is well worth while to run this grain through the fanning mill at least once. No chances should be taken in sowing the 1918 crop. The very best seed available should be used. Increases in yield of from 2 to 5 bushels or more to the acre are often obtained from sowing clean, large seed, but a gain of even a bushel to the acre will mean big wages for the winter days spent in getting seed ready for sowing.

TO CONTINUE EGG CAMPAIGN.

The campaign begun last spring by the Bureau of Animal Industry, United States Department of Agriculture, to encourage early hatching of chickens in order to obtain better egg production in the fall and winter, is to be continued on a larger scale in the coming year.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., JANUARY 9, 1918. No. 23

FARMERS TO INCREASE POULTRY PRODUCTION.

More Fowls and More Eggs Mean More Meat for Democracy's Fighters—Profits Can Be Made While Increasing Food Supply—Peace to Bring No Let-Down.

First, a few figures:

According to the last census, of 6,371,502 farms in the United States, 1,527,743 reported no egg production.

This is one of the big facts on which is based the endeavor to double this year the chicken and egg production of the United States. It is an almost unbelievable fact to those numerous persons who have regarded a chicken dinner as the acme of luxury and who have paid high prices every winter for eggs. But it is a fact, and it has much to do with the more-chickens-and-more-eggs campaign that is expected to displace millions of pounds of beef and pork in American menus and send the released product across the ocean to our soldiers, the allies, and the hungry people of the lands devastated by the Prussian war torch.

The United States Department of Agriculture urges as many as possible of the farmers who have not raised chickens to stock their farms this year with flocks large enough at least to supply the needs of their own households. It does not advise that the general farmer embark in extensive raising of poultry, but warns against such ventures. But it sees no reason why every farm should not produce enough chickens and eggs for its own use, and why there should not be enough surplus to make chickens and eggs available to the general public at reasonable prices and in such quantities that there will be markedly less domestic demand for the meats that are needed abroad and that can be transported there.

Hundred Hens on Every Farm.

One big aim in this endeavor is to increase to 100 hens the average size of the American farm flock. The present average is 40 hens.

> **WHY FARMERS SHOULD RAISE MORE CHICKENS AND EGGS.**
>
> More chickens and more eggs will release more meat for our armies and the allies. They can not get our chickens and our eggs—we can, and like to eat them.
>
> Poultry can be increased more rapidly and more economically than any of the meat animals.
>
> Chickens will live largely, grow and prosper, on waste that never otherwise would be of use, and will eat the infant bugs, particularly orchard pests, before they have had opportunity to do great harm.
>
> Chickens require a minimum of attention. Most of it can be given by women and children. No heavy labor is required.
>
> Chickens will help Win the War.

The desired increase, it is believed, will bring the desired production. The farmer with several hundred hens, of course, will be merely making up for his less fortunate neighbor unable to reach the average. This will be not merely a war-time increase. It and its benefits will remain after America's men and women—at the front and at home—have made democracy safe.

Furthermore, with all this production the farmer need not fear that the market will be glutted by poultry and eggs. A good profit is assured always by the low cost of farm poultry production. Further assurance is given by the fact that with the maximum production urged by the Department of Agriculture there will still be a great gap between production and possible consumption. Finally, many people who eat little or no chicken meat, and who are only distantly acquainted with the egg, will come to be fast friends and will ask for more.

Chickens as a by-product of general farming find much of their feed in the waste materials that otherwise would serve no useful purpose. The attention and labor they require can be given largely even by children, and should not require the employment of additional hired workers. On some farms the chickens practically pay for themselves by their destruction of orchard and vegetable insects. On others they help to pay for themselves by their production of manure, which when properly used largely increases the value of the land. Fifty fowls will annually produce at least a ton of manure that can be made as valuable as commercial fertilizer.

Early Hatching Essential.

An essential part of the endeavor to insure more chickens and eggs is contained in the maxim—hatch early. The farmer who hatches early in the spring, either by incubation or natural methods, seems to have all the best of the argument. When chickens are hatched early in the spring they mature in the fall and lay eggs in the winter. Then, in the spring, they are ready to hatch early. Late hatched fowls are late in maturing, do not lay in the winter, and do not sit until late in the following spring.

To the country at large early hatching by every chicken raiser means much. Early hatching will increase the number and size of fowls and the number of eggs produced next year. It will mean bigger birds, and birds that will lay in the winter months.

> **SAVE THE HENS.**
>
> Every pullet and young hen sold for food this winter means a reduction of from five to twelve dozen eggs in the potential egg supply of next spring and summer.
>
> Hundreds of thousands of farmers who have not raised poultry will do so next spring and summer—responding to the demand for more chickens and eggs so that beef and pork will be released to help Win the War. They will need young hens.
>
> The United States Department of Agriculture urges the saving of fowls of producing qualities, so that they may be used for stock in the early spring.

> **EARLY HATCHED CHICKENS STRONGER.**
>
> The early hatched chicken is not only the chicken that lays the winter egg, but it is the chicken best able to withstand disease and parasites.
>
> It is in the midsummer months that chickens are hurt most by lice. The late hatched chicken has not had time to become large or strong enough to resist lice attacks, but the early hatched chicken by midsummer has become strong and hardy enough to do so. And because the early development of the early hatched bird has preceded the extremely hot months, it is more apt to live through the summer.

To the individual farmer it means more profit. He will get more chickens, as a larger proportion will live; he will get more actual meat, not only because more will live but because his chickens will be larger; and he will get more eggs, when eggs are scarce, for early hatched pullets will lay in the winter.

Hens to Win the War?

The recognized importance of food in the greatest war makes it seem that the hen must take her place among those who are helping to win it for the forces of democracy. This place will be an important one in proportion to the response this year to the call for increased chicken and egg production. The hen, of course, always has shown a willingness to do her duty, and doubtless she is willing now. All that is to be done is for her masters, the farmers of the nation, and the city dwellers who are helping on a backyard scale, to make sure that the hens' opportunity will not be neglected.

FREEDOM AGAIN DRAWS SWORD.

"This is a sad business we are in, but that was a sad business in 1776. That was for the establishment of freedom; this is for the preservation of freedom. If we are worthy of the freedom our fathers won, we will not flinch from sacrifice to preserve it for our children. * * *

"If they had failed through weakness of purpose or cowardice or hesitation, we would blush to remember them; if we fail through irresolution or by permitting sinister influences to divide and confuse us, the struggling democracies of the world and our own posterity will curse us."—Clarence Ousley, Assistant Secretary of Agriculture, in address at St. Louis.

Volunteer crop reporters and special correspondents who aided the Bureau of Crop Estimates, United States Department of Agriculture, in the fiscal year ended June 30, 1917, numbered 174,103.

WHY HATCH EARLY.

Chickens hatched early in the spring are large in the summer, mature early in the fall, and lay eggs in the winter. They will sit early the following spring, produce earlier chickens—and the process will be repeated by the offspring.

But the chickens hatched late in the spring will not mature until late in the fall—so late that they will not lay in the winter. They will not sit until late in the following spring—and again the process will be repeated.

The jury finds that the argument is all in favor of early hatching—especially this year.

ASKS $6,000,000 TO BUY SEED FOR FARMERS.

Secretary Houston Requests Appropriation for Purchase and Sale of Seed at Cost to Meet Unusual Conditions.

David F. Houston, Secretary of Agriculture, has asked Congress for an appropriation of $6,000,000 to enable the Department of Agriculture to buy and sell seed to farmers for cost at a reasonable price. The necessity for the appropriation is explained in the following letter which the Secretary has sent to the Secretary of the Treasury:

"I have the honor to submit herewith, for transmission to Congress for inclusion in the urgent deficiency bill, an estimate of an appropriation of $6,000,000 to enable the department to purchase and sell seeds to farmers in areas where unusual conditions prevail, and particularly in those which have suffered during the past season from severe drought. It is suggested that the following language will accomplish the purposes which the department has in mind:

"'To enable the Secretary of Agriculture to meet the emergency caused by the need for food and feed crops by purchasing, or contracting with persons to grow, seeds suitable for the production of food or feed crops and to store, transport, and furnish such seeds to farmers for cash at a reasonable price, $6,000,000, and this fund may be used as a revolving fund until the Secretary of Agriculture determines that no such emergency exists; and the Secretary of Agriculture is authorized to pay all such expenses, including rent, and to employ such persons and means, in the District of Columbia and elsewhere, and to cooperate with such State authorities, local organizations, or individuals as he may deem necessary to accomplish such purpose.'

"The seed situation has presented, and continues to present, many difficulties. Under the provision of the food-production act, which made available $2,500,000 for the purchase and sale of seed to farmers in restricted areas for cash, at cost, it has been possible for the department to furnish some relief. Large quantities of seed of cotton, grain sorghums, and corn have been purchased for the drought-stricken sections of Texas in order to assist in making available adequate supplies of seed for the next planting season. The department is taking similar action in North Dakota and Montana and has arranged to purchase considerable quantities of old corn suitable for seed for sale to farmers in Indiana, where an emergency exists with reference to the supplies of viable seed corn.

"It is clear, however, that the funds now at the command of the department are wholly insufficient to enable it to meet the situation properly. If production is to be maintained or increased next year, it is essential that prompt and adequate action be taken to safeguard the seed supplies of the Nation. There is urgent and immediate need for at least $6,000,000, and it is probable that an additional sum will be required in the near future.

Southwest and Northwest.

"Two general areas have suffered severely from drought during the past season—the Southwest, including a large part of Texas and a part of Oklahoma, and a considerable portion of the Northwest, including large sections of North Dakota and eastern Montana. These regions represent a large part of the grain-producing areas of the United States, with particular reference to grain sorghums, oats, barley, flax, and corn. The seed corn situation in the northern half of the corn belt is more serious than it has been for many years. Early frosts throughout the northern part of the corn belt caught much of the corn either in the milk or in the dough stages and, although the crop was large, it contains an unusually high percentage of soft corn. The high prices prevailing also have caused farmers to sell their old corn and consequently there is a much smaller supply on hand than in former years.

Grain and Forage Sorghums.

"Reports received through the department's agents and from other sources are to the effect that the crop of both grain and forage sorghums in Kansas, Texas, and Oklahoma was badly injured by the drought and by early frosts. Unless prompt action is taken to buy and store the seed, a pronounced shortage will undoubtedly exist next spring.

Soy Beans.

"Early maturing varieties of soy beans in recent years have become very important in several northern States, especially in Michigan and Wisconsin. The early frost of this year caught the soy beans in these States when they were about half mature and the seed crop, therefore, is practically a total loss. The probable large use of soy beans as feed, both whole and ground, and as human food, will absorb a large part of the crop of the early varieties harvested in Indiana and Ohio. Since these are the only sections from which suitable seed for Michigan and Wisconsin can be secured, it is important that adequate seed supplies be withdrawn from consumption and made available for planting during the next season.

Navy Beans.

"Three northern States produce large quantities of white or navy beans, Michigan,

New York, and Wisconsin. Of the total acreage, nearly three-fourths is in Michigan. An early frost not only greatly reduced the yield, but also greatly injured the viability of the beans. It is essential, therefore, that action be taken to see that an adequate supply of good seed in available for the next planting season.

Purpose of Department.

"It is the purpose of the department, if the sum suggested is made available, to take immediate steps to secure, test, and store at least a portion of the supply of these seeds that will be needed for next season. In this connection, it should be borne in mind that, under the language of the item, the seed will be sold to farmers only for cash at a reasonable price, and it is provided that the fund may be used as a revolving fund until the Secretary of Agriculture determines that the emergency contemplated by the appropriation no longer exists. In the circumstances, it is believed that it will be possible to return to the Treasury the entire amount appropriated, or at least the greater portion of it."

VOLUNTEER WORKERS.

Thousands of Reporters and Special Correspondents Gather Crop Statistics.

Credit to 174,103 volunteer crop reporters and special correspondents throughout the country who served without compensation is given in the annual report of the Chief of the Bureau of Crop Estimates, United States Department of Agriculture.

To show the degree of accuracy of its work by the aid of volunteers the bureau report cites two examples:

For the 17 years 1900–1916 the number of pounds of lint cotton (net weight) as reported by the Bureau of the Census was 98,419,-369,000. As estimated in December annually by the Bureau of Crop Estimates the crops were given at 97,222,739,000. For the 17 years the per cent of underestimate was 1.2. For 5 years, 1912–1916, the per cent of underestimate was 0.8. For the 3 years 1914–1916 the per cent of underestimate was 0.6.

To determine the accuracy of the department's estimate of rice production for 1915 and thereby afford basis for any necessary adjustments, reports of receipts of rough rice from the 1915 crop were obtained from every rice mill of importance in the United States. These reports accounted for 28,995,213 bushels. The total production as estimated by the Bureau of Crop Estimates in December, 1915, was, 28,947,000 bushels. The underestimate was about two-tenths of 1 per cent.

STOCK-KILLING ANIMALS.

Take Heavy Toll from Nation's Food Supply—Prevalence of Rabies Increases Danger.

A single wolf in Colorado took a toll of nearly $3,000 worth of cattle in one year; in Texas, 2 wolves killed 72 sheep valued at $9 each during a period of two weeks; in Oregon, 4 coyotes in two nights killed 15 purebred rams valued at $20 each; and 1 bobcat in New Mexico in one month killed 53 lambs, 1 ewe, and 1 goat belonging to a single ranchman. These points are brought out in the report on the work of the Bureau of Biological Survey of the United States Department of Agriculture for the fiscal year ended June 30, 1917.

The destruction of such stock-killing animals has a direct bearing on the increased production and conservation of the Nation's food supply. Their control means that stock and poultry raising can be conducted with safety, and with this in view the bureau employs a force of 175 to 300 hunters and trappers who hunt these animals. They accept no bounties from any source, all skins of animals taken becoming the property of the Government. Last year the proceeds from this source amounted to approximately $36,000.

Over 100,000 Predatory Animals Killed.

During the year 30,512 predatory animals were taken, including 556 wolves, 22,342 coyotes, 107 mountain lions, 3,053 bobcats, and 60 bears. Bears are generally considered game animals and are not molested by the predatory-animal hunters except in cases of individuals known to have the habit of killing stock. In addition to the capture of animals by means of traps and shooting, extensive poisoning campaigns were conducted, and it is conservatively estimated that at least 75,000 predatory animals were destroyed in this manner.

As a result of this destruction of stock-killing animals a large saving of cattle, sheep, goats, horses, swine, and poultry has been effected, in addition to reducing greatly the danger to human life from rabies. Stockmen have shown much interest in the work and in numerous instances have contributed funds for cooperation. The States of Nevada, Utah, and Washington are also cooperating, having appropriated substantial sums for the purpose.

Fight Against Rabies.

The damage done by predatory animals has been increased by the prevalence among them of rabies. This disease spreads from the point of origin in Oregon into the States of Nevada, California, Idaho, and Utah. Cattle and sheep were destroyed in large numbers and hundreds of persons were bitten. As a result of the campaign conducted by the bureau in cooperation with local authorities and stockmen, the spread of the disease has been checked and conditions have been greatly improved. It is believed that with a continuance of the work complete eradication of this alarming disease among the wild animals of the affected States can be accomplished.

CLEAN UP GARDEN TRASH.

Burn Weeds and Rubbish That May Harbor Insects Over Winter.

Throughout the United States are plots of ground cultivated last spring and summer as temporary war gardens. Where these plots were suitably located, with due attention to sunlight, abundant crops of vegetables, especially for family use, have been produced, but quite too frequently such plots have become generally neglected, with the result that much material in the form of crop remnants and rank weeds will remain through the winter, favoring during the autumn the continued multiplication of certain forms of insect pests, and during the winter a safe harbor for the insects to pass the colder months. Next spring these insects will reappear, and if the same plots are selected for planting there is grave danger of serious injury, particularly soon after planting.

The methods employed in commercial truck gardens and farms to prevent the wintering-over of insects in the field should be put into practice in the case of the war or "back-yard" garden. Entomologists of the United States Department of Agriculture advise that as soon as a crop has been harvested the remnants should be promptly cleared away and burned with the insects which they harbor. The same applies to weeds, including grasses which spring up between the rows. Rubbish of all kinds should be carefully collected and destroyed in the same manner that no shelter be left for the insects during the winter.

Try to induce your neighbors to carry out the same measures; otherwise you may fail.

BULL ASSOCIATIONS VALUABLE.

Bull associations should be a potent factor in the control of contagious diseases, according to the annual report of the Bureau of Animal Industry, United States Department of Agriculture. One of the associations, of which on June 30, there were 36 actively operating in 17 States, has discarded all cattle that reacted to the tuberculin test, while other associations have been successful in avoiding contagious and infectious diseases of all kinds.

FOREST SERVICE WORK.

Realigned to Meet War Conditions. Peace-Time Program Has Been Largely Discontinued.

How the work of the Forest Service was realigned to meet war conditions is described in the annual report of the Forester, which in the absence of the head of the Service is made by Acting Forester A. F. Potter. The report also states that practically every form of use of the forests was greater than ever before, that the receipts again touched a new high level, with a total of $3,457,028.41, and that the increase in receipts over the previous year was $633,487.70.

"When the grazing charge has been advanced to cover the full value of the grazing privilege," says the report, "the income from the National forests will be close to the cost of operation. The present annual cost is about $4,000,000." An increase equal to that of the last fiscal year "would close the gap."

The Forester, Henry S. Graves, is now serving with the American expeditionary forces in France, with a commission as lieutenant colonel, in connection with the forest work for the supply of the needs of our overseas troops and those of the allies. A number of other members of the Forest Service received commissions in the Tenth Engineers (Forest), while many more entered the ranks.

Assists War and Navy Departments.

"Upon the rupture of diplomatic relations with Germany," says the report, "the Forest Service began to plan for meeting the responsibilities which, if war followed, it should assume." Among these were emergency assistance in the protection of public works and transportation lines and the gathering of military reconnaissance information valuable to the War Department.

Wood and other forest products have almost innumerable uses in modern warfare, it is pointed out. Never before has the demand for exact knowledge been so urgent. "In the work relating to forest utilization and forest products, the resources of the service have been employed to the limit of their capacity since the war began in rendering assistance to the War and Navy Departments, the Emergency Fleet Corporation, various committees of the Council of National Defense, and manufacturers of war orders. The peace-time program has been largely discontinued. The force and the work have been centered in Washington and Madison. Every effort has been made to bring available knowledge to the attention of the organizations which have need for it and to assist in anticipating their problems."

Much of the work has concerned aircraft material. It has included also problems connected with the construction of wooden ships and of vehicles. Assistance has been given to hardwood distillation plants in order to increase the production of acetone and other products needed for munition making. A commercial demonstration has shown that costs of producing ethyl alcohol from wood waste can be materially reduced. Methods have been developed by which walnut and birch can be kiln-dried in a much reduced time with comparatively little loss. In general, the report says, "much assistance has been given on a great variety of war problems relating to forest resources and the manufacture, purchase, and most efficient use of wood and other forest products."

Forest Work Continued.

In spite of the many new demands upon the service and the entrance upon military duties of a considerable number of its men, the administrative and protective work on the national forests was continued without disorganization. "Upon request of the War Department the preliminaries of recruiting and officering the Tenth Engineers (Forest) were handled. Increase of crop production in and near the forests was stimulated, and the forage resource of the forests was made available for emergency use up to the limit of safety. In the latter part of the summer a fire season of extreme danger, made worse in some localities by an unusual prevalence of incendiariam, was passed through with relatively small loss of property and with no reported loss of life."

ATTAINS NEW HIGH MARK.

Number of Animals Slaughtered under Federal Inspection Greater in One Year than Ever Before.

More food animals were slaughtered under Federal inspection in the fiscal year that ended June 30 than in any previous year since Federal meat inspection was begun. New high records also were made in the quantity of meats processed and in the quantity of meats and products certified for exports.

Animals inspected before slaughter numbered 63,816,323, divided as follows: Cattle, 9,316,201; calves, 2,675,205; sheep, 11,348,376; goats, 174,862; swine, 40,301,679. Animals inspected after slaughter numbered 63,708,148.

Products certified for export under certificates and stamps were as follows: Beef and beef products, 475,572,431 pounds; mutton and mutton products, 3,944,658 pounds; pork and pork products, 1,473,576,220 pounds; a total of 1,953,093,309 pounds. In addition, 430 certificates, covering export of 6,370,434 pounds of inedible animal products, were issued.

Provisions of the meat-inspection law usually do not apply to animals slaughtered by a farmer on a farm nor to retail butchers and dealers supplying their customers. It is required, however, that the retail butchers and dealers, in order to ship meat and meat food products in interstate or foreign commerce, shall first obtain certificates of exemption. The number of exemption certificates outstanding at the close of the fiscal year was 2,456, an increase of 61 over the preceding year.

Inspection of imported meats and meat food products for the fiscal year showed a decline of 73.6 per cent from the inspections of the fiscal year 1916.

CHEESE WORK GROWS IN WEST.

Work to develop cheese manufacture in the Western States, begun in July, 1916, has resulted in 12 new cheese factories, says the annual report of the Bureau of Animal Industry, United States Department of Agriculture. Improvement of the milk supply produced a better quality of cheese and greater yields. One factory reported that the improvement of the milk supply alone increased the net income of cheese at least $3,000 a year. Possibilities for expansion of cheese work in the West are said to be almost limitless, but no effort is being made to encourage the establishment of factories where there are not cows enough or where other circumstances prevent successful operations.

BEEKEEPERS HELP FEED NATION.

Response of beekeepers to appeals to increase honey production, thus helping to meet the food shortage, and especially the sugar shortage, has been strikingly large, according to a report by the Bureau of Entomology, United States Department of Agriculture.

The honey market news service inaugurated by the Bureau of Markets of the department is expected to curtail speculation and make the market more stable.

CASEIN FROM BUTTERMILK.

Casein, an essential in the making of paper, and in great demand because of the failure of imports, may be made from buttermilk, says the annual report of the Bureau of Animal Industry, United States Department of Agriculture. While the best grade of casein is made from skim milk, improved methods can produce from buttermilk a quality only slightly inferior to the best grades.

LABELS SPEAK TRULY.

Misbranding of Hundreds of Alleged Cures Corrected by Ten Years of Food and Drugs Act.

Ten years ago there was no ailment to which human flesh is heir that some maker of patent medicines did not claim to be able to cure with such ease that it seemed almost the height of foolishness not to part with the price for his nostrums.

To-day, because of the operation of the Federal Food and Drugs Act, the extravagant promises of cure that characterized the labeling of the patent medicines of 10 years ago have practically disappeared from the preparations that enter interstate commerce. They may, however, still be found in newspaper and other advertisements that are not subject to the act. The "pure-food law," as it is known, is concerned only with the package as it is shipped in interstate commerce. If one questions the truth of a newspaper advertisement of a patent medicine, let him read the label on the carton or bottle at the corner drug store. The latter will come nearer telling the truth about the medicine.

Misbrandings Corrected.

Misbrandings, in regard to the healing value of hundreds of alleged cancer cures, so-called "cures" for coughs, colds, consumption, kidney diseases, epilepsy, St. Vitus dance, and the like, have been corrected. This is told in the annual report of the Bureau of Chemistry, United States Department of Agriculture, which reviews the operation of the Food and Drugs Act in the safeguarding of the health of the American people.

The law requires the labels of patent medicines to declare the presence of any habit-forming drug, such as opium, cocaine, or alcohol, thus preventing the innocent development of the drug habit. This provision of the law is particularly valuable in warning mothers against the use of so-called infant soothing sirups containing opium.

When the act went into effect, drug addiction was so prevalent that frauds in the treatment of the victims were frequent, and in most instances the remedy advertised so forcefully by the labels contained the very drug from which escape was desired.

Habit-Forming Drugs Controlled.

In 1907 the Bureau of Chemistry found that 30 soft drinks contained small amounts of cocaine. Practically all of these were suppressed. The Food and Drugs Act is regarded as having been an important factor in bringing about the passage of the Harrison anti-narcotic law, which more effectively controls habit-forming narcotics.

Much has been done, the report says, to control the indiscriminate use of so-called headache remedies containing dangerous, depressing drugs, and of dangerous cosmetics making claim to healing value; and in raising the quality of the supply of crude drugs through the examination of imports. As a result of cooperative work with the Post Office Department, a number of fraud orders were issued by that department preventing the use of the mails in promoting the sale of fraudulent medicines.

INTERCEPTS FOREIGN PESTS.

Federal Horticultural Board Prevents Spread of Dangerous Insects and Plant Diseases.

In all, some 259 different species of insects and no less than 130 specific diseases were intercepted by inspectors and collaborators of the Federal Horticultural Board on nursery stock imported to this country during the year ending June 30, 1917. The insects that were intercepted included one nest of the browntailed moth from France, two egg masses of the gipsy moth from France and Belgium, raspberry sawfly from France and England, the gold-tail moth from Holland, an undescribed weevil in seeds from Guatemala, a flat-head borer in chestnuts from Japan, a number of nests of "white tree Pierid" from France, and numerous scale insects from various quarters of the globe.

Some of the more important interceptions of plant diseases were citrus canker on pomelo from China, the so-called pineapple disease on sugar cane also from China, a disease affecting radish seed from Japan; another affecting the roots of fig from Spain, and a number of other diseases affecting fruit trees, garden crops, and flowers.

CONTROL OF CRANBERRY DISEASE.

A parasitic fungus apparently undescribed causes the disease of cranberries known as end-rot, and it can be largely controlled by thoroughly spraying with Bordeaux mixture, a recent report by specialists of the United States Department of Agriculture says. The disease has become more prevalent and destructive during the last few seasons.

Investigation of rots and spoilage of this fruit after picking and methods of prevention have been carried on by the department in connection with the Massachusetts Agricultural Experiment Station. Results of investigations so far show that the loss is partly due to the development of destructive fungi and partly to the rapid death of the fruit, both of which are favored by high temperature, rough handling, and lack of ventilation. Losses from these causes can be largely prevented by thorough spraying and cooling of fruit as quickly as possible after picking, storing it in a cool, well-ventilated place, and handling the fruit carefully to avoid bruising.

PROGRESS IN DRY FARMING.

Twenty-four field stations on the Great Plains are now contributing valuable information to dry-land farming problems. Five of these stations this year completed a continuous record of 10 or more years of farm experiments and 11 others had continuous records of five or more years. More than 4,000 permanent plats devoted to crop rotations and studies of cultural methods are now furnishing records every year. Records of such extent and continuity furnish better evidence concerning many fundamental agricultural problems than has ever before been available and enables the United States Department of Agriculture to advise with increasing assurance on the questions of adaptation of crops, the response of crops to cultural methods, and the agricultural value and possibilities of each section represented by the stations.

GRAPE INSECT CONTROLLED.

Large-scale spraying experiments against the grape-berry moth, in progress in northern Ohio vineyards in cooperation with the Ohio Agricultural Experiment Station, have confirmed earlier results obtained at North East, Pa., according to the annual report of the Bureau of Entomology, United States Department of Agriculture. The conclusion from the experiments is that the pest can be controlled by two thorough applications of arsenate of lead (preferably in Bordeaux mixture) made by the "trailer method," the first immediately after the falling of the blossoms and the second two weeks later. This is held to be an important improvement over schedules requiring late spraying, which usually result in discolored fruit at picking time.

POULTRY BREEDING ASSOCIATIONS.

Establishment of community poultry breeding associations illustrate interest by older people as the outgrowth of the girls' and boys' poultry clubs under the supervision of the Bureau of Animal Industry, United States Department of Agriculture. The effect of these associations is to establish in one section an interest in one particular breed or variety of fowl. This work has been taken up in four States, with 42 associations and 885 members.

REPORT FARM PRODUCE.

New Service, Found Successful in Providence, R. I., Extended to Other Cities.

A daily market report on local farm produce furnished to consumers and producers in Providence, R. I., this season by marketing agents of the United States Department of Agriculture, in cooperation with the Providence Market Gardeners' Association, has proved so successful that it has been extended to other cities. The service consists in recording and tabulating, as early in the morning as possible after the growers arrive at the wholesale farmers' market, the total quantity of each product offered for sale, posting the results at various places in the market to guide both producers and buyers in securing accurate and complete information on which intelligently to base prices, and preparing for the local press when prices have become established a popularly written and reliable market report on locally grown fruits and vegetables.

Results Exceed Expectations.

The results of this service, first tried in Providence, were far beyond expectation, marketing specialists of the Department of Agriculture declare in reviewing the work of the season. Posting figures covering quantities of more important products helps buyers and sellers to agree on fair prices which can thus be based upon accurate knowledge of the day's supplies. The daily press report carries information to housewives regarding products that are in heavy supply and low in price, as well as a list of all fruits and vegetables offered, the quantities of each, and prices at which they were sold at wholesale to various retailers. The service greatly stimulated the demand on the part of consumers, tended to lower retail prices, and thus allowed a freer movement of produce. The heavy demand resulting from the publicity helped to stabilize the prices which the growers received and in certain cases prevented disastrous gluts.

Service Extended.

Because of the evident improvement in local marketing conditions at Providence, it was decided to extend the service as an emergency measure to a number of other cities having centralized wholesale farmers' markets. Department representatives, therefore, entered into cooperative relationships with local truck growers' organizations or with city officials at Boston and Springfield, Mass.; Albany, N. Y.; Cleveland, Ohio; Grand Rapids, Mich.; St. Paul, Minn.; and Denver, Colo. Although the service of these cities has been installed so recently that it is not practicable to judge the results accurately as yet, it is believed by officials of the Department of Agriculture that much can be expected from this new line of endeavor when it is properly developed in cities.

AERONAUT'S HANDBOOK.

Weather Bureau Prepares Manual for Use of Aeronauts and Aviators.

According to the annual report of the Chief of the Weather Bureau to the United States Secretary of Agriculture, a manual or handbook entitled "Meteorology and Aeronautics" is soon to be issued. This manual will appear as Report No. 13 of the National Advisory Committee for Aeronautics, of which the Chief of the Weather Bureau is a member.

The handbook, on which considerable work has been done since February, 1917, discusses the properties and general phenomena of the atmosphere which aeronauts and aviators should understand. It is divided into three parts: Part one, which deals with physical properties and dynamics of the atmosphere; part two, with topographic and climatic factors in relation to aeronautics; and part three, with current meteorology and its use. Part three also contains a summary of the free-air conditions most likely to be experienced under different types of pressure distribution at the earth's surface.

Frequent conferences have been held with officials of the aeronautical branches of the Army and Navy, and plans are being perfected for free-air observations in aid of aeronautics and the firing of projectiles at several of the training camps.

Copies may be obtained on application to the National Advisory Committee for Aeronautics, Washington, D. C.

NITRATE FOR FARMERS.

Secretary of Agriculture Announces Completion of Arrangements for Purchase and Distribution.

David F. Houston, Secretary of Agriculture, to-day (December 29) made the following statement regarding the purchase of 100,000 tons of Chilean nitrate for fertilizer use by farmers under the provision in the food-control act which authorizes the President to procure nitrate of soda for this purpose and to supply it to farmers for cash at cost:

"I have been giving a great deal of thought and attention to the nitrate question. I have been in daily touch with the War Industries Board, which was to purchase and deliver the material at the seaboard, and also with the Shipping Board. Arrangements were completed several weeks ago, through the War Industries Board under the immediate supervision of Mr. Baruch, to purchase approximately 100,000 tons of nitrate of soda in Chile in accordance with the authorization for such purpose in the food-control act. Because of disturbed shipping conditions it has been impossible until recently definitely to secure facilities for transporting the nitrate in whole or in part. Within the last few days preparations have been completed for the delivery at the seaboard during January of 18,000 tons, and every reasonable assurance has been given that supplies, up to the 100,000 tons, for the ensuing months will be delivered. Every possible effort will be made to make certain these deliveries, but it should be understood that, on account of existing situations, circumstances over which there is no control might intervene.

"I can not state to-day exactly what the price will be, but it will be approximately $75 on board cars at the seaboard. Farmers will have to pay freight charges to their local stations, the State fertilizer tag fee, which varies in different States but will probably not average more than 25 cents a ton, and any other local charges.

"The nitrate secured under the appropriation will be sold only to farmers for their own use during the coming season, and generally not in excess of the amounts used by them heretofore. The department is now arranging machinery for the distribution of the material and will give full publicity concerning the details of the matter."

ENCOURAGE SHEEP RAISING.

Well-Planned Courses in Secondary Schools Will Create Local Interest, Specialist Says.

One of the best ways to create interest in sheep raising, just now one of the most attractive live-stock opportunities, is to teach the subject properly to boys in the secondary schools, in the opinion of a specialist in agricultural education with the United States Department of Agriculture. Many rural districts of the United States are not awake to the opportunity connected with sheep raising, declares this specialist, in introducing a new publication of the department, Bulletin 593, "Judging Sheep as the Subject of Instruction in the Secondary Schools."

Arouses Interest Among Farmers.

Much can be done toward arousing an interest not only among the boys but among the farmers of a community by a well-ordered course of instruction which permits not only class instruction but also allows the boys to do their own laboratory work by keeping a few sheep at home on their own account. The bulletin mentioned is primarily for the use of teachers of secondary agriculture.

Confining a study of stock judging to purebred animals may furnish a good foundation for the training of a show-room judge,

says the writer of the publication, but it does not give the training needed by many farmers in the corn belt and other territory adjacent to the large markets where feeder sheep are purchased and fattened. A knowledge of types of purebreds grown in the community is helpful, but it is important for the farmer to know the classifications and demands of the market buyers. This knowledge can be given to the pupils only by studying market classes and grades. In each community instruction which will be helpful in meeting the practical problems common to the particular form of the industry practiced in the community should be given. In connection with this study, visits to packing houses and stockyards conducted by the instructor may be made very profitable features of the study, it is said.

SOFT DRINKS IMPROVED.

Methods of Handling Have Been Revolutionized by Food and Drugs Act.

Cleaning and bottling machinery of five years ago in the business of soft drinks and mineral waters is out of date to-day. Ten years ago most of the samples of mineral water collected were unsatisfactory. Conditions now are greatly improved.

These facts are cited in the annual report of the Bureau of Chemistry, United States Department of Agriculture, to show how methods of handling soft drinks and mineral waters have been revolutionized in the 10 years' enforcement of the Federal Food and Drugs Act.

Misrepresentations regarding the healing value of so-called lithia waters and radioactive waters, the report says, have been practically eliminated from the labels of these products.

EASTERN NATIONAL FORESTS.

Commission Authorizes Purchase of Nearly Sixty-Six Thousand Acres.

The National Forest Reservation Commission on December 12 authorized the purchase of 65,923 acres of land in the Southern Appalachians and White Mountains for inclusion in the eastern national forests. A resolution was adopted refusing to make further purchases in Georgia until after the repeal of hostile legislation passed by the State legislature last summer. About 27,800 acres on the Savannah and Georgia purchase areas which were recommended to the commission will be held up by this resolution. The commission also refused to approve the purchase of a tract on the Unaka area in Tennessee, for which a higher price than that agreed to by the owner was awarded by the jury in condemnation proceedings brought with the owner's consent to clear the title.

The largest single holding whose acquisition was authorized is one of 35,079 acres on the Shenandoah National Forest, in Bath, Augusta, and Highland Counties, Va., for which $2.50 per acre will be paid. In Winston and Lawrence Counties, Ala., a number of small tracts, aggregating 13,435 acres, were approved. Other lands ordered purchased include 1,430 acres in Carroll and Grafton Counties, N. H.; 7,250 acres in Amherst County, Va.; 6,801 acres in Buncombe, Mitchell, Yancey, McDowell, and Macon Counties, N. C., and 1,428 acres in Tucker and Randolph Counties, W. Va.

The greater part of the land approved in Amherst County, Va., on the Natural Bridge National Forest, is owned by the city of Lynchburg and comprises the watershed from which the city derives its municipal water supply. A condition of the sale to the Government is that this tract and adjoining lands shall be administered and protected so that the purity of the water supply will not be endangered. No restriction, however, is placed on full utilization of the resources of the tract.

POULTRY CLUBS GROWING.

The girls' and boys' poultry clubs, first organized in 1912, are being continued in eight States, according to the annual report of the Bureau of Animal Industry, United States Department of Agriculture.

In Georgia, Kentucky, Massachusetts, North Carolina, Oklahoma, South Carolina, Tennessee, and Virginia 249 counties are organized with 1,121 clubs and 11,224 members. In the past year members set 84,171 eggs, hatched over 59,000 chickens, and raised 38,327 matured fowls. More than $8,000 worth of poultry products were sold or consumed at home. The total receipts of $39,546.25 gave an average profit of $14.72 for each member reported.

CONTINUE BREEDING CIRCUIT.

Members of a Holstein-Friesian breeding circuit in North Dakota have arranged to continue the work for another 10 years, following the conclusion of experiments by the Bureau of Animal Industry, United States Department of Agriculture. Originally the circuit was a community project to demonstrate the effect of developing one breed of dairy cattle.

To relieve the situation caused by severe drought in certain sections of Texas, and especially to insure a sufficient supply of good seed for the next planting season, steps were taken promptly to purchase a stock of approximately 37,500 bushels of seed corn for sale to farmers for cash at cost, as provided for in the food production act.—Extracted from Annual Report of Secretary of Agriculture.

HANDLING PERISHABLES.

Fruit and Vegetable Grading Studied by Bureau of Markets—Tentative Grades Worked Out.

Extensive studies in the grading and handling of fruits and vegetables were made by the Bureau of Markets of the United States Department of Agriculture this season, and tentative practical grades have been worked out for apples, peaches, and strawberries, according to a recent report of progress from the bureau. The work has covered the principal producing sections of the East, South, and Middle West and also the more important markets. It has included grading, packing, packages, packing-house construction and equipment, and the effect of different methods of handling upon the physical condition of the fruit. The operation of sizing machines and other labor-saving devices also were studied to determine their efficiency and practicability.

Department Prepared to Make Recommendations.

As a result of this work the department is now prepared to make definite recommendations as to grading and packing these crops, fruit packing-house plans and equipment, and general handling methods. Special attention has been given to apples, peaches, potatoes, Texas Bermuda onions, cantaloupes, and tomatoes, and a study of the various operations of harvesting, grading, packing, inspecting, and shipping has been started on other truck crops.

As a result of these investigations the Bureau of Markets was able to recommend immediately, in conjunction with the United States Food Administration, on the request of the Federal Reserve Board, potato grades for use by member banks when, in August, the banks were authorized to make loans against warehouse receipts for potatoes properly graded, packed, stored, and insured. These grades are described in a publication of the department, Markets Document 7.

Grades Put to Practical Test.

The tentative grades worked out in 1916 were put to a practical test by being used as a basis for the actual field grading of car lots of onions and potatoes to compare the movement and selling price of graded stock with that which had not been graded.

In this work experiments have been made to determine the efficiency and practicability of machinery for sizing these crops. It was demonstrated that the work may be done economically and with more uniform results by the use of machines than by hand methods.

RAISE MORE POULTRY

Our meat supply is short and more poultry will help solve the problem. More poultry means more eggs and more eggs and poultry meat means a greater food supply. Poultry can be raised at lower cost and brought to maturity quicker than any other kind of live stock.

On Farms and in Back Yards

HOUSE the flock comfortably; keep houses dry and well ventilated, allowing plenty of fresh air and sunshine.

Remodel the old house—stop cracks and eliminate drafts.

Give hens a good straw litter to scratch in during the winter months.

EARLY hatched pullets produce more winter eggs and return the greatest profits. Early hatched chicks have the advantage of a longer and better growing season.

Hot weather retards the growth of young chicks.

NEVER allow the mother hen to range with the young chicks until they are at least two weeks old.

Enormous numbers of young chicks are lost each year by allowing them to run in the wet grass during their early life.

SHADE and range for chickens will give the best results. Hot sun retards growth. There should be trees, corn, sunflowers, etc., on the range to provide shade during the hot summer months.

Chickens on range pick up much of their food.

ELIMINATE the male bird at end of hatching season. Fifteen million dollars is lost each year by allowing the rooster to run with hens during the summer months. Produce the infertile egg. Dispose of the male bird not later than June 1. Market a better quality of eggs.

GREEN feed is excellent for poultry and can be substituted for a considerable amount of the grain ration. Grow oats, vetch, and rape for summer use; cabbage and mangel beets for winter. Store cabbage and beets in a dry room or bury in a pit and cover with straw and earth.

GREATEST returns are procured by feeding sour milk or buttermilk to both young and old birds. Results in greater gains. Will require less grain. Produces more eggs. Increases the profits. Makes a home market for waste by-products.

SAVE eggs during April and May for winter use by preserving in waterglass. Mix 9 quarts of water, boiled and cooled, with 1 quart of waterglass. Will preserve 15 dozen eggs.

Place the solution in a 5-gallon jar. Store in cool place for winter use.

More Eggs and Poultry Will Save Beef and Pork

For published information and individual advice on poultry raising write to your County Agent, State Agricultural College, or to the

U. S. Department of Agriculture, Bureau of Animal Industry
WASHINGTON, D. C.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., JANUARY 16, 1918. No. 24

UNITED STATES GOVERNMENT WAR-SAVING STAMPS.

[The following is from an official document of the Treasury Department, W. S. 113, entitled: "United States Government War-Saving Stamps: What They Are and Why You Should Buy Them."]

In offering "*War-Savings Stamps*" to the public the United States Government has made immediately available for every man, woman, and child in the Country a profitable, simple, and secure investment.

WHAT THEY ARE.—*War-Savings Stamps* are the answer of a great democracy to the demand for a democratic form of government security. They are "little baby bonds." Like Liberty bonds, they have behind them the entire resources of the Government and people of the United States. They have the additional advantage that they steadily increase in value from the date of purchase until the date of maturity, and this increase is guaranteed by the Government. These stamps are issued in two denominations, the 25-cent stamp and the $5 stamp.

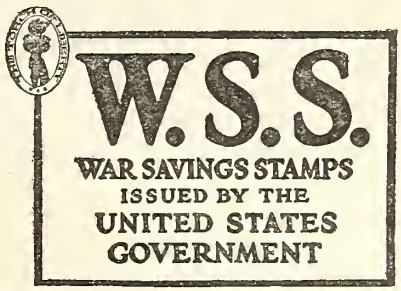
For the convenience of investors a "*Thrift Card*" is furnished to all purchasers of 25-cent stamps. This card has spaces for 16 stamps. When all the spaces have been filled the *Thrift Card* may be exchanged for a $5 stamp at post offices, banks, or other authorized agencies by adding 12 cents in cash prior to February 1, 1918, and 1 cent additional each month thereafter.

Those who prefer may buy a $5 stamp outright. These will be on sale from December 3, 1917, until January 31, 1918, for $4.12. They automatically increase in value a cent a month thereafter until January 1, 1923, when the United States will pay $5 at any post office or at the Treasury in Washington for each stamp affixed to a *War-Savings Certificate.*

When you purchase a $5 stamp, you must attach it to an engraved folder known as a "*War-Savings Certificate*" which bears the name of the purchaser and can be cashed only by the person whose name appears upon the certificate, except in case of death or disability. This certificate contains 20 spaces. If these are all filled with *War-Savings Stamps* between December 3, 1917, and January 31, 1918, the cost to the purchaser will be $82.40, and on January 1, 1923, the Government will pay the owner of the certificate $100—a net profit to the holder of $17.60. This is based on an interest rate of 4% compounded quarterly from January 2, 1918. The amount of *War-Savings Stamps* sold to any one person at any one time shall not exceed $100 (maturity value), and no person may hold such stamps or *War-Savings Certificates* to an aggregate amount exceeding $1,000 (maturity value).

If the holder of a *War-Savings Certificate* finds it necessary to realize cash on it before maturity, he may at any time after January 2, 1918, upon giving 10 days' written notice to any money-order post office, receive for each stamp affixed to his certificate the amount paid therefor plus 1 cent for each calendar month after the month of purchase of each stamp. A registered certificate may be redeemed, however, only at the post office where registered.

In other words, the plan is simple, straightforward, and certain. The holder of the certificates can not lose and is certain to gain. He is buying the safest security in the world in the most convenient form in which the security of a great Government has ever been offered to its people.



Why You Should Buy Them.—The main reason for the purchase of *War-Savings Stamps* is because your Country is at war. Your Country needs every penny which every man, woman, and child can save and lend, in order to feed, clothe, arm, and equip the soldiers and sailors of America and to win this righteous war in defense of American honor and the cause of democracy throughout the world.

If we are to win the war, we must win it as a united people. The savings of every man, woman, and child are necessary if we are to hasten the victorious ending of the war. *War savers are Life Savers.*

A single strand in the cables which uphold the great Brooklyn Suspension Bridge is not very strong, but thousands of these strands bound together uphold one of the great thoroughfares of the world.

When our fathers and sons and brothers were called by our Country to take up arms in her defense, you did not hear an individual soldier refuse to serve because his service alone would not win the war. Each man was ready to do his part. The great army thus formed is going forward to face the fire of battle and to risk everything for the safety and security of our homes and our families, and for the very existence of our Country.

These are the men for whom you are asked to save and lend your dollars.

A Country worth *fighting* for is a Country worth *saving* for.

To save money is to save life.

Buy War-Saving Stamps at post offices, banks, trust companies, or other authorized agencies, and strike a blow for our Country.

The War-Savings Plan.

Q. What is the War-Savings Plan?

A. It is a plan by which you can lend small savings to your Government at 4 per cent interest, compounded quarterly.

Q. How may this be done?

A. By purchasing War-Savings Stamps and Thrift Stamps.

Q. What is a War-Savings Stamp?

A. It is a stamp for which the Government will pay you $5 on January 1, 1923.

Q. What does it cost?

A. Between $4.12 and $4.23 during 1918, depending upon the month in which purchased.

Q. What is a Thrift Stamp?

A. It is a stamp costing 25 cents, to be applied in payment for a War-Savings Stamp. It does not earn interest. The purpose of its issue is to enable people to accumulate in small sums the amount necessary to pay for a War-Savings Stamp.

Q. Where can I buy them?

A. At post offices, banks, and authorized agencies.

Q. Why should I buy them?

A. Every dollar loaned to the Government helps to save the lives of our men at the front and to win the war.

War-Savings Stamps and Certificates.

Q. I want to begin to save on the War-Savings Plan. What is the first thing to do?

A. Take $4.12 to the post office or a bank or any other agent, buy a War-Savings Stamp, and ask for a War-Savings Certificate.

Q. What is a War-Savings Certificate?

A. It is a pocket-sized folder containing 20 spaces upon which to affix War-Savings Stamps.

The Price of War-Savings Stamps.

Q. Does the price of a War-Savings Stamp always remain the same?

A. No. The price for each month appears on the face of each stamp. Never pay either more or less than the amount shown for the month in which you make the purchase. The price is $4.12 in December, 1917, and January, 1918, and increases 1 cent each month after January, 1918, until in December, 1918, when the price is $4.23.

Q. Why is the price higher each month?

A. Because the stamps are earning interest.

Thrift Stamps and Thrift Cards.

Q. If I do not have enough money saved up to buy a War-Savings Stamp and can only save in small amounts, what should I do?

A. Buy a 25-cent Thrift Stamp at a post office, bank, or other authorized agency and ask for a Thrift Card, to which you can attach your Thrift Stamp.

Q. Is there any charge for a Thrift Card?

A. No. It is given you to hold Thrift Stamps and contains a place for your name and address.

Q. How many Thrift Stamps will this card hold?

A. Sixteen stamps, which represent a value of $4.

Exchanging Thrift Cards for War-Savings Stamps.

Q. When I have filled the Thrift Card, what do I do?

A. Take it to a post office, bank, or other authorized agency, surrender the card and pay in cash the few cents difference between the $4 worth of Thrift Stamps and the price of a War-Savings Stamp for the month in which the exchange is made.

Q. What do I do next?

A. You take the War-Savings Stamp given you in exchange for your Thrift Card, ask for a War-Savings Certificate, if you haven't one already, and attach the stamp to the certificate.

Q. Should I continue to buy Thrift Stamps?

A. Yes. Ask for a new Thrift Card and begin again.

Q. Do Thrift Stamps bear interest?

A. No.

Q. Then why are they issued?

A. To make it convenient for you to save in small amounts so that you can purchase a War-Savings Stamp, which does bear interest.

Q. May I exchange Thrift Stamps for War-Savings Stamps at any time?

A. No; only on or before December 31, 1918.

Lending Your Money to the Government.

Q. When I lend my money to the Government, would it be safer to buy a government bond rather than these War-Savings Stamps?

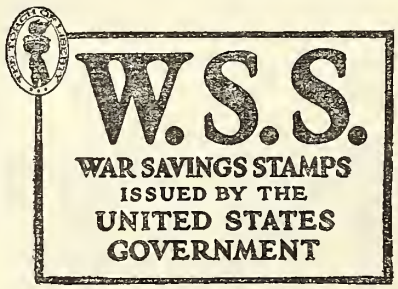
A. When a War-Savings Stamp is attached to a War-Savings Certificate it becomes a government obligation with the same security as the Liberty bonds, now held by more than 10,000,000 Americans.

Q. Is the 4 per cent interest, compounded quarterly, on War-Savings Certificates paid in the same way as the interest on Liberty bonds?

A. No. The Liberty bond interest is paid every six months, but the interest on the War-Savings Certificate accumulates and is paid to you in one sum, on January 1, 1923.

Q. Shall I sell Liberty bonds to buy War-Savings Stamps?

A. No. The security behind Liberty bonds and War-Savings Certificates is the same. Keep your Liberty bonds, but buy War-Savings Stamps also.



Q. Should I take money out of the savings bank to buy War-Savings Stamps?

A. No. You should save as much as you can every day and buy Thrift Stamps and War-Savings Stamps with these savings.

Transfer.

Q. Can I sell or transfer my War-Savings Certificate to anyone?

A. No. The certificate is not transferable and is of value to the owner only, except in case of death or disability.

Q. Should I sell my Thrift Card to anyone?

A. No. Your Thrift Card has your name on it and should be filled with sixteen 25-cent Thrift Stamps and exchanged at a post office, bank, or other authorized agency for a War-Savings Stamp.

Registration.

Q. Should I register a War-Savings Certificate?

A. Yes, if you wish to secure payment in case the certificate is lost.

Q. Am I required to register it?

A. No.

Q. Where can I register it?

A. At any post office of the first, second, or third class, subject to such regulations as the Postmaster General may prescribe.

Q. Is there any charge for registration?

A. No.

Payment at Maturity.

Q. Where does the United States Government pay the $5 on January 1, 1923, for each War-Savings Stamp attached to a War-Savings Certificate?

A. At either the Treasury Department in Washington, or at any money-order post office after ten (10) days' notice.

Q. Where is payment made if the certificate is registered?

A. At the post office where the certificate is registered.

Payment Before Maturity.

Q. If it is necessary before January 1, 1923, to have money for my War-Savings Certificate, how can I get it?

A. If it is not registered, take it to any money-order post office and it will be redeemed, after ten days' written demand, as prescribed by the rules of the Post Office Department. If registered, take it to the post office where registered.

Q. Can I surrender my Thrift Card for Cash?

A. No.

Q. If I must have money on my Thrift Card and Thrift Stamps, how can I obtain it?

A. By filling the Thrift Card and exchanging it for a War-Savings Stamp, which has a redeemable value.

Q. Is the post office the only place where I can surrender my War-Savings Certificate before its maturity and get my money back?

A. Yes.

Q. How much notice must I give the post office?

A. Ten days' notice.

Q. If I should find it necessary to surrender my War-Savings Certificate for cash, what rate of interest would I receive on my investment?

A. A little less than 3 per cent.

Q. If I have registered a War-Savings Certificate in one city and I move to another, do I have to go back to the city where registered to get my money?

A. No. You may, by applying to the postmaster where your certificate was registered, have your registration card transferred to any post office you may designate.

Q. Can I write my name on a stamp to identify it?

A. Yes.

Unless farmers are sufficiently interested in farm bureau work to form an effective organization which truly represents the farming interests of the county, there is small chance of the county bureau meeting with great success.

SHIPPING COWS.

Suggestions as to Handling Dairy Animals in Transit—Special Care Should Be Used.

The following information as to handling cows in transit was obtained by a representative of the United States Department of Agriculture from several prominent shippers, each of whom handles annually from 2,500 to 4,000 head of dairy cows.

(1) Do not ship fresh cows long distances unless in express cars under particularly favorable conditions. The expense involved naturally limits such operations to valuable purebred individuals. Time and time again, as a result of being shipped shortly after freshening or so as to calve in transit, fresh cows have been ruined so far as the next lactation has been concerned.

(2) Milk cows of grade breeding usually are shipped by freight, and the experienced shipper selects only dry cows and "far-springers" for long shipment. Heifers which have never dropped calves and which are not due to freshen until three or four weeks after arrival at destination make good "buys," as they are of a size and condition which permits of loading the car to capacity. Furthermore, immature animals are less susceptible to injury in transit and to damage as a result of a marked change of environment.

(3) If possible, ship only animals without horns. In case horned animals are shipped they should be tied securely or penned off in one end of the car to preclude the possibility of injuring other animals during the trip.

(4) Similarly, when bulls are shipped in mixed loads, they should be securely penned apart from the females.

(5) Other conditions being equal, it is advisable to load a car to capacity, as the animals travel better where there is a minimum of space in which to move about.

(6) So far as possible, the stock should be shipped during cool weather, as cows handled during hot weather are liable to shrink in milk flow during the successive lactation period as a consequence of such a trip.

(7) Special precaution must be exercised in shipping cows during cold weather, to avoid exposure which will favor the contraction of pneumonia, usually a fatal disease among mature cattle. At best it takes an animal about a year to become thoroughly acclimated to a warmer or colder climate, and on that account the movement should take place when the temperature of the two points is as nearly similar as possible.

(8) Dairy cows should be handled under normal conditions before and during the trip. They should be fed and watered at regular intervals; and if any of the animals are in milk, they should be milked on schedule. It pays to feed ensilage and hay during shipment if the cows are accustomed to these roughages. Simple provision for the feeding of these materials can be made by stretching small-mesh hog wire along the side walls and ceiling so as to form a wedg-shaped bunk which can be filled with hay and ensilage in proportion to the appetite of the cattle. Grain is a difficult material to feed in transit in a freight car where no special provisions are made to prevent wastage as a result of the tendency of the animals to move about when not fastened in place. In long trips grain may be carried in the car and fed at the points where the stock is unloaded.

(9) A competent attendant always should accompany the load of dairy cows. He should ride in the car with the stock, as often he can avert injury to an animal in case it gets down.

(10) Several large barrels of water as well as plenty of feed should be carried in the car as protection against delay or accident which may detain the train and leave the animals hungry or thirsty for excessive periods.

(11) Sand or cinders constitute the best bedding materials, and during long trips fresh supplies of those materials should be placed in the car at unloading points in case they are needed.

(12) In view of the high price of dairy cows at the present time it is imperative that every stockman exert all efforts to make for cow comfort in transit and to move the animals with a minimum of loss as a result of carelessness, lack of attention, and inexperience in the cow-shipping business.

COTTON WILT AND ROOT-KNOT.

Control of These Diseases May Necessitate Change of Farming Plans.

Where cotton wilt and root-knot are present the whole scheme of farming must often be changed and planned with special reference to the control of these highly important enemies of the cotton crop, says a new Farmers' Bulletin, "Cotton Wilt and Root-Knot" (No. 625), just published by the United States Department of Agriculture. The planting of wilt-resistant strains of cotton and the use of crop rotations are the two important measures that must be taken in the regions affected by the diseases, it is pointed out, if profitable cotton production is to be continued.

The bulletin contains a list of the more important crops which are immune or highly resistant to root-knot and outlines certain two and three year rotations, involving the use of such crops, which have satisfactorily controlled the disease. Emphasis is laid on the fact that cotton wilt can be practically controlled only by the use of resistant varieties, several of which, including the Dixie and Dillon, have been developed by the Bureau of Plant Industry during the past 15 years. Sources from which wilt-resistant seed may be secured are given and methods for the farm breeding and maintenance of resistant strains described. Copies may be had free on application to the United States Department of Agriculture, Washington, D. C., so long as the supply lasts.

WE WILL NOT FAIL.

"I would lose something of my trust in the justice of Almighty God if I doubted the ultimate triumph of our righteous cause. In the faith of the Puritans, in the valor of the Cavaliers, in the endurance of the patriots from Concord to Yorktown through bleeding marches and starving days, in the unspeakable agony of Belgium, in the splendid and unconquerable courage of France, in the daring and suffering of Italy, in the grim and uncomplaining sacrifices of Great Britain and her colonials from the four quarters of the globe, in memory of the women and children of the *Lusitania* and the crews of peaceful merchantmen done to death by the assassins of the sea, in punishment of the lawlessness of the German Government and the perfidy of her broken promises, in vindication of our right to order our ways as we choose, and in loyalty to the sovereignty of man above the usurpations of royal pretenders, let us take heart to strike in the full measure of our strength, to the limit of our energies and resources, as becomes the sons of men whose name and fame we bear."—Clarence Ousley, Assistant Secretary of Agriculture, in address at St. Louis.

NEW VARIETIES OF CHESTNUTS.

Some very promising varieties of chestnuts have been developed by specialists of the United States Department of Agriculture. The new varieties are likely to be of considerable value as nut-producing trees because of their fruitfulness and precocity of bearing, as well as their evident measure of resistance to the chestnut-bark disease. In the collection of trees which have been under experimentation are about 1,500, representing both native and Asiatic varieties. Fifty per cent of these are hybrids. Observations on the hybrid chinquapins which were developed some years ago also are included in the nut investigations of the department, and the results are considered especially encouraging.

FEED DRIED POTATOES.

Department Investigators Find Dried Pressed Tuber Is Valuable Feed for Hogs.

Dried pressed potato is "very efficient in producing rapid gains and a high finish when fed to swine," United States Department of Agriculture investigators have found in a search for a suitable way to dispose of cull or surplus potatoes.

To give best results, however, dried pressed potatoes must be fed in combination with feeds rich in protein, such as oil meal, fish meal, and tankage.

The investigators also advise mixing or soaking such feed with water for 15 minutes before its use.

Feeding Value Demonstrated.

An experiment, in which were used 12 high-grade pigs between five and six months of age, was conducted to determine, first, the value of dried pressed potato in a ration for fattening hogs and supplemented by feeds rich in protein, and, second, the effect of dried pressed potato on the quality of meat produced.

The pigs were divided into four lots of three each. The first lot, for checking purposes, was fed a ration of six parts corn meal and one part tankage. The other three lots were fed rations of six parts dried pressed potato, the second lot supplemented by one part of tankage, the third lot by one part of linseed-oil meal (old process), and the fourth by one part of fish meal. The pigs in all the lots ate well and regularly, and the investigators drew the conclusion that the dried dressed potato rations were palatable and produced pork readily.

Does Not Produce Soft Pork.

In carcass tests after the fattening experiment the investigators found "on the whole it is impossible to say that dried pressed potato meal does not produce a fat equal for all purposes to that produced by corn meal. While we were able to note some little difference in hardness in favor of the lot fed on corn meal, that difference was so small as not to be noticed under average packing-house conditions. Dried pressed potato meal does not produce soft pork."

Regarding the quality of the meat in the case of the bacon strips, little difference can be detected. Here it is indicated that the corn-fed hog is much the fattest.

In the rendered lard, the investigators found no noticeable variation in taste, odor, color, or consistency. The carcass data are thus summarized:

"Dried, pressed potato meal fed with any of the three supplements used in the experimental feeding produced pork equal in quality to that produced by a ration of corn meal and tankage.

"Dried, pressed potato meal supplemented with old-process linseed-oil meal produced a carcass which for degree of finish excelled even that of the corn-meal hog, and the degree of finish on the other two lots was but little inferior to that of the check hogs.

"No difference could be noticed in any way in the curing qualities or in the excellence of the finished product cut from the hams, shoulders, and bacon sides of the hogs fed in the four different lots."

The experiment and the conclusions are described in detail in a professional paper, Bulletin No. 596, of the United States Department of Agriculture.

WATER SUPPLY FOR POULTRY.

A supply of pure drinking water frequently renewed is as necessary for poultry as sufficient supplies of food.

There are two different types of drinking vessels for poultry in common use: Open vessels—pails, pans, crocks, and the like; and drinking fountains so constructed that dust and dirt can not get into the water except by way of a very small exposed surface.

These quite opposite types of drinking vessel are about equally popular with poultry keepers. Open vessels catch more dirt and dust, but are more easily cleaned. Closed fountains may be used much longer without cleaning, but if allowed to become foul are harder to clean thoroughly.

Placing open drinking vessels on a shelf a foot or more above the floor prevents the hens from scratching coarse litter into them, but does not keep out fine dust which floats in the air and settles in the water.

Thoroughly rinsing open vessels once a day and scalding drinking fountains once or twice a week will usually keep them as clean as necessary.

OPEN SHED FOR DAIRY COWS.

In experiments at Beltsville, Md., by the Bureau of Animal Industry, United States Department of Agriculture, a warm barn, commonly deemed essential for large milk production during the winter months, proved to be somewhat less satisfactory than an open shed. Experiments extending over three years showed that cows housed in the open shed consumed a little more feed, required more bedding and slightly increased labor cost, but because more milk was produced and on account of the lower cost of housing, the open shed was found to be somewhat more economical.

BACK-YARD POULTRY.

By Feeding Table Scraps to Small Home Flocks Householders May Secure Cheap Egg Supply.

Raising small back-yard flocks of chickens on table and kitchen scraps to produce the family's eggs and part of its meat supply is a solution of one of the problems of the high cost of living, according to Farmers' Bulletin 889 of the United States Department of Agriculture, "Back-yard Poultry Keeping." Even as few as six or eight hens, says the bulletin, should produce eggs enough, where used economically, for a family of four or five persons throughout the entire year except during the molting period of the fall and winter. By the preservation in waterglass of surplus eggs produced during the spring and early summer, even this period of scarcity can be provided for. The use of scraps in feeding will keep the cost of maintenance relatively low, since only a small quantity of supplemental feed will be necessary.

Flock May Be Kept Odorless and Noiseless.

There is no necessity for the back-yard poultry flock to become a nuisance to neighbors, says the bulletin. If the house and yards are kept reasonably clean there will be no annoying odors. The noise made by male birds can best be eliminated, it is suggested, by the elimination of the male bird himself. The fact that there is no male in the flock will have absolutely no effect on the number of eggs laid by the hen.

General-purpose Breed Best.

One of the general-purpose breeds, such as Plymouth Rock, Wyandotte, Rhode Island Red, or Orpington, is preferable to the smaller breeds, such as Leghorns, if the flock is to contribute to the family meat supply as well as to furnish eggs. If the production of eggs is the principal aim of the poultry farmer, however, it will pay to keep one of the egg breeds, since they eat less than the larger fowls. City poultry keepers usually will find it most advantageous to purchase pullets in the fall for egg production.

Piano Box Makes a Good House.

The housing facilities of the back lot need not be elaborate and may, in fact, be constructed from large packing cases or piano boxes. A floor space of from 3 to 4 square feet per bird is ample in the houses. The yard space should be from 20 to 30 square feet per bird. The back-yard poultryman, the bulletin points out, should take care in feeding table and kitchen scraps not to make use of decomposed waste material or

moldy bread or cake, as such food may be seriously harmful to the fowls.

Copies of the bulletin previously referred to may be had free on application to the United States Department of Agriculture, Washington, D. C.

BREED NOW FOR MAY PIGS.

Ideal Time for Farrowing in Many Parts of Corn Belt.

Sows bred at this time of the year and for the next 30 days will farrow in May. In many parts of the corn belt this is an ideal time for market hogs to be farrowed, says the United States Department of Agriculture. Generally the grass is good, there is plenty of sunshine in warm weather, and the pigs get an excellent start, something very essential to a good outcome. By the time the pig is weaned new grains that have been raised this year will have been harvested. Barley, rye, and oats all make splendid feed for growing pigs. They can be carried along with these feeds, plus pasture, until the new crop of corn becomes available, and in looking at the matter from many viewpoints May pigs are among the most profitable that can be raised. Every hog grower knows that hogs that have been properly grown during the summer time put on flesh rapidly when they have access to new corn.

In this connection it is advised that hog growers who can get the seed plant a small patch of Ninety-day corn. This is good feed in August, and if the field is large enough will carry the pigs along until the main corn crop is ready for feeding.

If the hog grower has not permanent pastures of alfalfa, clover, or other grasses, he can make temporary pasture by the heavy seeding of rye, oats, barley, or wheat. These various grains can be sown in rich soils, very often in the hog lots, at the rate of anywhere from 2 or 3 to 5 or 6 bushels per acre. Dwarf Essex rape can be grown quite successfully and makes mighty good hog pasture. If you have not increased your number of hogs this year why not try breeding a few sows for May farrowing?

COW-TESTING ASSOCIATIONS GROW.

Cow-testing associations, as a result of work by the Bureau of Animal Industry, United States Department of Agriculture, have continued to increase until now there are 472 active associations composed of 12,088 dairymen owning 216,831 cows. The past year showed a gain of 37 per cent in number of associations. The cows tested are approximately 1 per cent of all the dairy cows in the United States. The most noticeable development has been in the Western States.

CARE OF BROOD SOWS.

Exercise and Proper Feeding Necessary to Produce Strong and Vigorous Litters.

The sows that will farrow in March and up to the middle of April have already been bred. If these sows produce good, strong, vigorous litters and get these pigs through successfully to weaning time they must be properly cared for from now until the day of farrowing. One of the biggest hindrances to the sows' farrowing good, strong, vigorous litters is lack of exercise. During the cold and snowy weather hogs like to lie around the sleeping quarters and be comfortable. That, however, is just what they should not do all the time, advise the specialists of the United States Department of Agriculture.

Exercise Necessary.

The proper exercise for a brood sow is that which she will take voluntarily and not through force. They should get their corn ration by hustling for it in the stalk fields and not by getting it fed around the sleeping quarters, on feeding floors, or in troughs. Feed them ear corn during the winter months and scatter it out in the stalk fields. The manure spreader is a good implement to use in scattering this corn. Don't be afraid it will be wasted, for it won't. You can readily regulate the amount fed so that it will be picked up clean, and you will find next spring that there is not a bit of the corn lying around to go to waste.

Add Protein to Corn Ration.

Protein feeds in the form of shorts, tankage, oil meal, or alfalfa hay should be supplied. Self-feeders can be used for these feeds, and it is quite successful to grind the alfalfa hay. Sows will eat a larger percentage of alfalfa hay fed in the ground form than when fed in racks unground. This alfalfa is generally cheaper on the corn-belt farms than any of the other protein feeds and is a good balance to the corn ration.

By following a few of these simple methods the sows will be brought to farrowing time capable of producing good strong pigs. Every hog grower knows that if he is going to have pigs that do their best from the start they must necessarily be strong and vigorous at farrowing time. The proper care of the brood sow is not difficult and should be carefully looked after by every hog grower.

SAVE THE SOFT CORN.

The insufficiently cured corn crops of 1915 and 1917 have caused some farmers, particularly those around Prophetstown, Ill., to apply 8 to 10 quarts of salt to each wagon load of corn as it is being cribbed. They report that the salted corn keeps well, while similar corn without salt spoils. They report that the salt draws water from the ears and prevents heating, souring, or rotting where there is sufficient ventilation to carry away the moisture.

Although observations and investigations along this line by the Office of Corn Investigations, United States Department of Agriculture, have not progressed far enough to give definite results, means of saving mature corn of unusually high moisture content are so urgent and tests of the preserving power of salt are so promising of economic results as to warrant a trial by farmers who find it advisable or necessary to crib corn containing 25 per cent or more of moisture. The cost of the salt will be less than 1 cent per bushel of corn. Even with the aid of salt, good ventilation is necessary.

NOT ROOM FOR BOTH.

"He is blind with prejudice or ignorance who does not now see that from the beginning of the war Germany contemplated an assault upon the United States after she had completed the destruction of France and England. Such a combat was inevitable sooner or later, for wide as the seas are that lie between and vast as are the unsettled spaces of the earth, there is not room enough on this little planet for two such antagonisms of political and moral purpose as German *Allmacht* and American independence."—Clarence Ousley, Assistant Secretary of Agriculture, in address at St. Louis.

The Bureau of Chemistry has made considerable progress in demonstrating the processes devised by it for preparing sugarcane and sorghum sirup that will not crystallize or ferment, and for utilizing the by-products. The work already under way on methods of handling, packing, storing, shipping, and utilizing fish, in order to make the supply more immediately available for food, has been extended and developed. In connection with the efforts to increase the supply of poultry and eggs, plans have been made to stimulate the establishment of poultry and egg packing plants in accordance with the principles worked out by the Food Research Laboratory. Ten additional men are being assigned to this work.—Extracted from Annual Report of Secretary of Agriculture.

To economize space in the poultry house the nests may be placed under the dropping boards. It is best to have them darkened, as the hens prefer a secluded place in which to lay.

MANY COTTON PESTS.

Entomologist Describes an All-year, Anti-insect System Designed to Protect This Crop.

Cotton has as many insect enemies as any other American crop, and possibly more, according to an entomologist of the United States Department of Agriculture, who declares that an all-year anti-insect system must be employed by cotton growers to protect this crop.

The boll weevil, bollworm, cutworm, May beetle, cotton aphis, southern grass worm, leaf worm, grasshopper, red spider, square borer, cotton stainer, and wireworm are only a section of the category which W. Dwight Pierce, of the Bureau of Entomology, describes in a recent publication, Farmers' Bulletin 890, "How Insects Affect the Cotton Plant and Means of Combating Them." The entomologist explains that in a publication of the size of a Farmers' Bulletin it is impossible to consider even briefly all the cotton pests.

The aim of the publication mentioned is to explain how insects affect the cotton plant, to show how to distinguish the principal ones, and how to combat them.

Among other conclusions which the entomologist reaches in studying control measures for cotton pests are these:

Control Measures.

Since many pests come to cotton from other crops or from weeds around the fields, weeds should not be allowed to grow on the cotton farm.

Rotation of crops is of much assistance in controlling pests.

An early crop which will bring the fruit to maturity before serious damage is done is necessary.

Poisons rarely are needed except as used in baits for cutworms, grasshoppers, etc., and as control measures against red spiders and worms when they threaten the crop in the spring.

Thorough fall plowing, winter cover crops, early spring preparation, and repeated cultivation during the season are other important measures of insect control.

A single system of control, effective against most of the insects described in the publication, may be given according to season as follows:

How to Combat Cotton Insects in the Fall.

(1) Pick the cotton as soon as possible.

(2) Destroy the plants as long before frost as possible by plowing under or grazing.

(3) Where practicable, plow the fields and plant a cover crop.

(4) If feasible, follow a three-year rotation, with cotton following some crop other than corn.

Winter Measures Against Cotton Insects.

(1) Clean up all turn rows and fence rows.

(2) Cut and burn all weeds.

(3) Plow under all stubble fields that are not to be used otherwise.

(4) Grub up old stumps.

Combating Cotton Insects in Early Spring.

(1) Keep down weed growths around the farm.

(2) Plow to break up the winter cells of insects in the ground.

(3) When necessary, put out poisoned baits for cutworms, grasshoppers, May beetles, and so on.

(4) Plant as early as it can be done safely to avoid killing frosts. Plant a variety which is found to be the best producer in your own locality, and which has the qualities of rapid and prolific fruiting.

(5) Space the rows in accordance with the best local experience.

(6) Cultivate frequently but not deeply.

Summer Measures Against Cotton Insects.

(1) Continue cultivation until the crop is made, or as long as possible.

(2) Watch for the first appearance of worms.

(3) Dust the cotton with powdered arsenate of lead as soon as grasshoppers or worms begin to attack, unless worm attack starts late and would hasten ripening.

(4) Keep down the weeds.

REFUSE "SQUAB CHICKEN."

Use Three-Pound Broilers and Fryers Instead, Say Poultry Specialists.

Housewives who wish to help relieve the meat situation will buy 3-pound broilers and fryers and refuse to use "squab chickens" weighing a pound, one-half, or less, say the dressed-poultry specialists of the United States Department of Agriculture.

The serving of underdeveloped or squab chickens in hotels, restaurants, and homes they regard as unpatriotic because such chickens, if kept for four weeks longer, including two weeks of crate fleshing, will weigh about 3 pounds. Moreover, under proper feeding, the chicken makes the extra flesh largely from by-products not ordinarily used for human food, as buttermilk, sour milk, skim milk, and low-grade grains.

A 3-pound broiler or fryer of one of the utility breeds, the specialists say, reaches this weight with a relatively less consumption of feed than the chicken which has been kept until it weighs 4 or 5 pounds. Up to 3 pounds, moreover, chickens of utility breeds make their flesh most effectively from feed. Above 3 pounds, every pound of gain requires for its production about twice as much feed. This makes plain why the 3-pound size always has been the favored bird in Europe where both grain and meat have been less plentiful than in the United States. In the past, the demand in Europe has led to a heavy exportation of 3-pound chickens. Such exports having ceased, these 3-pound chickens are now available for home consumption, a matter on which the public is to be congratulated.

For stewing, of course, the old hens weighing up to 5 or 6 pounds are economical. As these chickens have been fed and kept primarily to lay eggs, use of their meat when their egg-laying usefulness diminishes is clear gain to the Nation. Raising the weight of the "soft-meated" utility birds used for frying or broiling beyond 3 pounds, however, involves uneconomical use of feedstuffs to produce an unnecessary luxury.

TAKE FOOD PROBLEM SERIOUSLY.

The Arkansas entomologist reports to the United States Department of Agriculture that inquiries for information on the control of bean weevils and other insects have been unprecedented in numbers, and so numerous as to indicate that the corn and cotton farmer is taking the "feed-yourself-first" problem seriously, and in so doing is not only helping to win the war but is helping to put the South on a permanent agricultural basis.

SWEET-POTATO WEEVILS REPORTED.

The sweet-potato weevil has been reported from a number of parishes in Louisiana, and it is said to be doing considerable damage, especially in the coastal region. In some cases the acreage planted to sweet potatoes has been cut down greatly on account of the presence of the weevil.

In the 15 Southern States the number of community organizations of farmers formed to aid the county agents increased in a year from 1,654, with a membership of 44,548, to 2,508, with a membership of 78,660. In the 33 Northern and Western States the number of farm bureaus and similar local organizations was increased to 374, with a membership of 98,654.—Extracted from Annual Report of Secretary of Agriculture.

The number of community clubs organized among the rural women in the South increased from 250 to 1,042, and 1,635,000 women and girls actually participated in some form of emergency work.—Extracted from Annual Report of Secretary of Agriculture.

HOME FOOD PROBLEMS.

"United States Food Leaflets" Convey Nation's Expert Thought to Nation's Women.

Uncle Sam's food advice to his people at war, condensed in four-page "United States Food Leaflets," and aimed to stimulate food saving without slighting body needs, are now ready. Prepared by the United States Department of Agriculture and the Food Administration and with the aid of State representatives, the leaflets carry the country's expert thought on food conservation and utilization translated into popular language. For the mother who may be confused with much advice about her war obligation, as well as for the food conservation worker, the message of the leaflets should be most helpful.

Beginning with the day's first meal the experts take up the daily food problems of the average home. "Start the Day Right with a Good Breakfast" is Food Leaflet No. 1. Then follow others now ready: "Do You Know Corn Meal?" "A Whole Dinner in One Dish," "Choose Your Food Wisely," "Make a Little Meat Go a Long Way," "Do You Know Oatmeal?" "Food for Your Children." More will follow.

In four-page nutshells and in big, readable type, the problem of foods and diets are presented in a way which should make them "strike home"—every home in America. War diets for the child and the adult, carefully selected, not only with regard to "calories" and "protein"—scientific measuring rods—but also with delicate respect for young, middle-aged, and grown-up appetites, are presented by means of menus, recipes, and hints—many of them new and all of them simple and practicable.

A Dinner in One Dish.

Confident that "A Whole Dinner in One Dish," presented in Food Leaflet No. 3, will make good its name, the Government's food specialists guarantee that:

"The youngsters will like it."

"Father will like it."

"You will like it."

"Your pocketbook will surely like it."

"Your bodies can't help liking it."

"Uncle Sam is bound to like it."

Here is another brief lesson in food economy taught in one pointed paragraph: "Use cereals—corn-meal mush, oatmeal, rice, hominy grits. These are much cheaper than some 'ready-to-eat' breakfast foods. 'Ready-to-eat' breakfast food may cost 15 cents for a big package, but if the package contains only one-quarter of a pound—60 cents a pound for cereal. This is 8 or 10 times as expensive as corn meal at 6 or 7 cents a pound. Look for the weights printed on the package and get the most for your money."

Diet for Little Citizens.

Diets for the children, one leaflet says in big type, should not be skimpy, but a wise selection will enable food saving even in their meals. And, then, after enumerating model breakfasts, dinners, and suppers, the experts make a bid for the child vote with these suggestions:

"Sweets are good for them—the right ones at the right time. Dates, raisins, stewed fruits, simple puddings, and sugar cookies are better than candy. Give them at meal time. Between meals let them have bread and butter, a cracker, or fruit. They won't spoil the appetite, and candy between meals will."

A New Method of Distribution.

The United States food leaflets are intended to supplement rather than replace the Department of Agriculture's publications on food and other home problems. With the funds at its disposal the Department of Agriculture will be able to supply these leaflets directly only to leaders and active workers in the food conservation movements. Efforts are to be made to induce the press to republish this material widely and thus make it directly accessible to millions of readers. The department also will endeavor to interest women's clubs, churches, civic and other organizations, dry goods and other merchants, owners of factories and other employers, to purchase these leaflets in numbers at actual cost and to distribute them to members, employees, or friends. The seven leaflets now published are the first of a series of leaflets to be issued during the emergency, each dealing in the same simple language with practical food economies that any housewife can effect.

TO COMBAT ONION MALADY.

Department of Agriculture to Assign Specialists to Work in Districts Affected.

To combat neck-rot—a destructive storage rot of onions—in various localities of the United States, the United States Department of Agriculture next season is to assist growers in testing a method of controlling the disease, with the hope of putting the method on a practicable basis for commercial use. Specialists of the department will be assigned to the districts affected to advise farmers and to help in the installation and equipment of necessary structures.

The districts known to be infected include the principal onion-growing centers in Massachusetts, Connecticut, Ohio, Indiana, Delaware, Wisconsin, and Oregon. The disease occurs in other States also. Losses of from 25 per cent to 75 per cent in white onion sets have been recorded in the vicinity of Chicago and in northern Indiana. Red and yellow onions are not attacked as seriously as the white varieties.

Artificial Drying Method.

The disease known as neck-rot is caused by a fungus. The parasite enters the wounded necks of the bulbs at harvest time and gradually rots the scales until they become dried up and worthless. Of the control measures that have been tried, artificial drying of the onion sets in crates just after harvest has given the best results. The object of this method is to cure the necks as soon as possible, and thus check the fungus before it enters the flesh scales. In various lots treated recently, the rot was reduced from 14 to 1 per cent; from 47 to 7 per cent; from 53 to 7 per cent; and from 92 to 10 per cent.

URGES WATER-POWER LEGISLATION.

Noting the efforts of past years toward the enactment of legislation relating to the development of the water power of the Nation, the Secretary of Agriculture, in his annual report, says that "it becomes increasingly urgent that amendments to existing law be made and that a well-rounded policy be decided upon." The report continues:

"The present industrial situation, and particularly the scarcity and high cost of fuel and construction materials, have increased the cost of steam power and make it highly important that action be taken at the next session of Congress. Legislation which will make it possible to safeguard the public interests, and at the same time to protect private investors, should result in securing cheaper water power and in conserving the coal and fuel-oil supply. Since three departments of the Government are vitally concerned in water-power legislation and its possible terms and would be vitally affected by the administrative handling of matters under such legislation, it would seem desirable to consider whether it is feasible to devise an executive body on which the three departments will be represented and which will be able to utilize to the best advantage all their existing agencies."

The department, with the cooperation of the Food Administration Grain Corporation, undertook to secure an adequate supply of seed wheat for planting this fall and next spring. The Grain Corporation permitted elevators to set aside special storage space and authorized them to charge a slight advance over the established price to cover extra charges. The department located available stocks of seed, inspected them, certified to their soundness, and notified farmers where and on what terms they could secure such seed.—Extracted from Annual Report of Secretary of Agriculture.

ADVICE TO GARDENERS.

Clean Farming Methods Versus Insect Pests of the Garden—Work That May Be Done in Winter.

"Clean culture plays a most important part in the fight which must be waged against the insects which menace the success of the home gardener's efforts," say the entomologists of the United States Department of Agriculture. "Cleaning off all the rubbish left over from last season's gardening aids materially in reducing the numbers of the overwintering forms of the insect enemies of the vegetable garden, whose activities are only too great in any case.

Clean Up Litter and Rubbish.

"Cutworms, which hide in the soil in the daytime and come out at night to feed on the tender growth and cut small plants entirely off, wireworms that damage the tubers of potatoes and other root crops, and a host of other insects, winter under brush and rubbish on the earth or a few inches under ground. Where they can find protection during the cool weather of winter, conditions are ideal for their survival, and the warm days of the spring will bring them out in countless numbers to feed upon the tender foliage of the young garden truck. Neighboring weed patches shelter many forms. In the Gulf region and westward some insects work practically the year round.

"'Aphids' or plant-lice, are active during the winter months in the more southern sections and find food on ornamental vines and shrubs and on growing weeds which afford them food and shelter when other plants are not available. Much may be gained by keeping down the weeds in neglected corners.

"Leaves, stems, and other litter should never be allowed to accumulate up to the time of planting, or there will be thousands of insects the coming year where there were hundreds last season. Weeds should be cleared up and burned, together with all garden rubbish.

Working Soil Will Destroy Many Insects.

"The soil should be thoroughly worked over during the winter to destroy such insects as may be spending the winter on, or a few inches below, the surface. This is best done at least a month before the seeds are planted.

"If chickens are available for the purpose, they ought to be allowed free access to the newly turned over soil for a time, as the fresh meat in the form of insects which they will find there will prove a very welcome addition to their diet, and its removal will go far toward insuring a fair start to the garden crop."

CONTROL OF TOBACCO BUDWORM.

As a result of work at Quincy, Fla., a method of combating the tobacco budworm by means of a mixture of arsenate of lead and meal has been perfected and this remedy now is used generally, says a report of the Bureau of Entomology, United States Department of Agriculture. The method has effected a saving of at least $20 an acre over that previously in vogue.

The boys' and girls' clubs in the Northern and Western States, through their regular membership of 406,000 and an additional emergency enrollment of 400,000 drawn largely from cities and towns, have been an active juvenile army in the campaigns for promoting food production and conservation. The enrollment in the regular boys' clubs in the South was largely increased, and the total membership is now approximately 100,000. In addition, 200,000 are enrolled to assist in war emergency activities.—Extracted from Annual Report of Secretary of Agriculture.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, R. A. PEARSON.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. SPILLMAN, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals; and experiments in fur farming.

Office of Public Roads and Rural Engineering, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act.

Division of Publications, JOS. A. ARNOLD, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., JANUARY 23, 1918. No. 25

BE SURE OF SEED CORN.

Warning to Farmers to Procure Supply or Risk Being Without It—Do Not Feed Sound Corn.

A warning by the United States Department of Agriculture is being sent to the farmers of a number of States for which a serious scarcity of seed corn for spring planting in 1918 has been noted. These States include, in whole or part, New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Nebraska, North Dakota, and South Dakota.

Little corn of the 1916 crop is available and adapted seed can not be had from other sections. In this emergency the Seed Stocks Committee of the United States Department of Agriculture urges farmers not to overlook any possible source of supply. It points out that on many farms in the States where seed corn is scarce it is still possible to find some sound ears which should be saved for seed. In some cases, however, this sound corn is being fed because the owners do not realize its value nor the need for it. They have been accustomed to planting much better corn and have not stopped to consider that every bushel of seed corn they feed now would, if planted, produce a hundred or even two hundred bushels next year.

Select Sound Ears for Use as Seed.

Under ordinary conditions it pays to select seed corn in the field and to cure it carefully, but seed so selected and cured is not available for much of the corn acreage to be planted next spring. It will be necessary, therefore, the specialists emphasize, to use the very best seed that is available. Past experience shows that it is better to plant seed of an adapted variety, even though it is poor in germination, than to plant much better seed of an unadapted variety. For this reason, the Seed Stocks Committee urges farmers to pick over their corn and select the sound ears for possible use as seed. If more is saved than is needed, there will be a ready market for it next spring.

Guard Seed Corn from Damage.

This emergency seed should be separated from the immature or moldy corn immediately, to prevent further damage to its vitality. If it is not already dry it should be dried at once and kept at as uniform a temperature as possible. From 6 to 10 kernels from different parts of each ear should be taken and tested for germination. The ears which show all or nearly all dead kernels should be discarded. The remaining ears should then be shelled by hand and the grain from each ear carefully examined, discarding all kernels in which the germs appear to be dead. In this way, it should be possible for many farmers to get seed corn which will germinate from 50 to 80 per cent. This seed can then be planted thickly enough next spring to produce a stand.

Those who are not familiar with making single-ear germination tests of corn can get information on how to make the test from their county agent, from the State experiment station, or by sending to the United States Department of Agriculture, Washington, D. C., for a copy of Farmers' Bulletin 253.

The seed corn scarcity will not take care of itself. Farmers, to be sure of seed for planting in the spring, must save it this winter. Unless they do save it they or other farmers will be without seed corn in the spring. The only choice is between making sure now or causing a scarcity in the planting season.

NOT "OUR BIT" BUT "OUR BEST."

"Besides the sacrifices at the front, there must be sacrifices at home in a thousand ways I need not enumerate. Every man, woman, and child must help to sustain those who fight. I do not like the phrase 'do your bit.' We must do vastly more than a 'bit.' We must do our best."—Clarence Ousley, Assistant Secretary of Agriculture, in address at St. Louis.

More than 22,000,000 emergency Farmers' Bulletins, circulars, leaflets, posters, and the like were published from April 1 to November 1 in connection with the efforts to increase production, to eliminate waste, and to promote conservation. An equal number of publications dealing with the regular activities of the department were issued in he same period, making a total since April 1 of approximately 44,000,000 copies.—Extracted from Annual Report of Secretary of Agriculture.

THE CLOVER ACREAGE.

Urgent Need for Increased Planting—Seed Stocks Becoming Depleted—Suggestions for Sowing.

Clover hay is an important part of the ration of every dairy cow in the Northeastern States. Whether the farmer has a silo or not, and even if he feeds concentrates, he needs clover hay as the foundation of his feeding scheme. At a time like the present, when concentrates are high and are likely to continue being high, and when there is a great deal of reason to question whether the ensilage that will be put away next year will be of as high feeding value as usual, it is especially important to look out for the clover fields. Seed corn is known to be scarce and poor, and in the northern tier of States especially it is almost certain that many farmers will have to plant southern seed corn for ensilage. While this may fill the silo, it will not be as high in feeding value as more mature corn. This fact will make it important to have more clover hay with the ensilage.

Clover Acreage Reduced.

Last summer the effort to plant a large acreage of food crops resulted in the plowing up of a considerable acreage of meadow. This was reflected in a reduced acreage of clover seed cut during the past summer. Besides this, there was certainly a smaller acreage seeded to clover in 1917 than is usually the case. The seed trade found less demand than had been expected, and so an unusually large quantity of seed was carried over, in spite of the fact that the quantity of clover seed imported in the year beginning July 1, 1916, was not equal to that imported during the year ending June 30, 1916. Unfortunately, figures showing the acres seeded to clover seed are not collected each year, so we do not know to what extent the clover acreage is smaller now than usual, but much indirect evidence, as mentioned above, points unmistakably to the fact that the clover acreage is falling. This can not help but have a bad effect on production in the clover States.

Farmers recognize that clover culture lies at the foundation of soil fertility in the North. Good land may be farmed for a while without it, but its fertility will decrease; poor land must have a legume, and clover is the most convenient and satisfactory one yet found for that section. We can

not afford, therefore, to neglect clover, even if the price of seed is high.

Shortage of Seed.

That clover seed is high, and will continue to be so, must be recognized. However, the price has not advanced in as great a ratio as has the price of wheat and corn, and the advance in price is not much, if any, greater than what has been recorded for most farm products. A large part of this higher price, too, is going to the producer. One reason for the slow movement of clover seed to central markets so far this year is the unwillingness of farmers to sell. Prices are high, and they expect them to go higher, hence they hold. For the farmer who must buy, this is, however, not so desirable a state of affairs. However, it is not the price that concerns us most, but the question whether enough clover seed exists to plant a large area.

In the summer of 1917 clover hay was cut on approximately 7,600,000 acres. Since a large part of the clover seeded either fails and must be reseeded, or is used in some form so that pure clover hay is not cut, we may be sure that this is only about three-fourths of the acreage seeded in 1916. If this is true, or nearly so, some 10,000,000 acres were seeded, and for this some 110,000,000 to 120,000,000 pounds of seed were needed. In the clover States, including a part of eastern Nebraska, but not including any acreage west of the one-hundredth meridian, there were on December 1, 1917, some 18,500,000 acres in winter wheat. In the interests of the hay supply and of continued soil fertility, most of this acreage, or an equivalent acreage with oats, should be seeded to clover next spring. If we consider that much seed will be sown in mixtures and in Western States, not included in these figures, we can not be far wrong if we consider that 75 per cent of the present winter-wheat acreage should go into clover next spring. This is 13,875,000 acres and, seeding at 11 pounds per acre, the total seed needed will be 152,625,000 pounds. The best available estimates fix the quantity of clover seed, *if it is all used* that may be available for seed in 1918, at between 90,000,000 and 100,000,000 pounds. It is clear that irrespective of price and if no seed is exported there will not be enough seed to plant the acreage that should be planted next spring if seed is used at the average rate per acre.

In this situation the following suggestions are offered, looking toward making the existing supplies go as far as possible.

Seeding Suggestions.

(1) Reduce the average quantity of seed used. When clover seed is cheap and plentiful, thick seeding may pay as insurance and in the saving of labor and expense involved in more careful preparation of the seed bed and the purchase of machinery. Under present conditions, however, it will be advisable to (*a*) sow with a drill whenever possible; only about one-half as much seed is needed this way. (*b*) Harrow in the seed if broadcasted; this will not hurt the wheat and will cover the clover seed better, thus giving it a better chance and making it possible to get a stand with less seed. (*c*) Do not sow red clover on low, poorly drained land; use only alsike. Red clover is more likely to fail on such land and alsike is almost certain to succeed. Also the seed of alsike is smaller and a pound of this contains more than twice as many seeds as a pound of red clover does, consequently the alsike will go twice as far. (*d*) On good land with plenty of moisture even if it is not wet land, and on land where red clover does not do well because of a lack of lime, sow alsike clover seed only. This is urged because alsike is cheaper now than red and relatively more plentiful, and because on run-down land the chances of a stand with alsike are better than they are with red. Or sow a mixture of about 4 pounds of red and 3 pounds of alsike. (*e*) *Sow sweet clover.* This crop can be handled practically like red clover and succeeds well in north Kentucky and from Illinois north and west. It has also been successfully grown in Ohio and Indiana and might well be substituted in these States on soils having plenty of lime. If sweet clover is sown it should be seeded on wheat early in spring just as for red clover, but farmers should insist on *scarified* seed, and, if where sweet clover or alfalfa has not been grown before, the seed should be *inoculated.* This is important. Sweet clover has also been found to do well on the sandy lands of northern Michigan and in general wherever lime and inoculation can be given it should be worth trying as a substitute for red clover. Further information may be secured from Farmers' Bulletin No. 797 on sweet clover.

(2) Use lime freely to strengthen the clover and thus help to insure a stand. While the best time to apply lime is when land is being prepared for wheat, it will do good if ground limestone is put on the wheat and harrowed in with the clover seed.

(3) In some sections, especially in the southern parts of the clover belt and on favorable lands farther north, clover may be seeded after wheat harvest. This is the most successful practice in Kentucky, Tennessee, and in sections just north of these States. The seed bed should be well prepared and made firm so the young plants can make a rapid growth.

(4) While it is not possible to predict what the supply of clover seed will be in the winter of 1919, there is much reason to fear that the present condition of inadequate supplies will continue. There is now a strong export demand, and with the continuance of the war the imports will again probably be negligible. The increased acreage of corn and cereals did not make for a large acreage of clover which can be left for seed next summer, and even if the season is good the supply can not well be very large. If seeding is heavy this spring there will be little, if any, carry over, and it may not unreasonably be expected that the supply next year will be quite as short as it is this year. Farmers, we feel, will do well to consider this and prepare in advance for using such other forage crops in addition to clover as they can profitably grow. One suggestion is that they plan to increase the acreage of timothy. This makes a hay not as good as clover for dairy use but is the best of the true grasses, and a timothy sod makes a good foundation for a following corn crop. Other crops will suggest themselves for special sections.

HARVEST NATURAL ICE.

Every Ton Gathered Will Help Save Ammonia for Fertilizers and Explosives.

Farmers and others who harvest natural ice this winter and store it for summer use will aid greatly in the conservation of ammonia, vitally important at this time, it is pointed out by the United States Department of Agriculture.

Ammonia is a necessity in the manufacture of ice. Every ton of natural ice harvested means a certain amount of ammonia saved. Ammonia salts are regarded as an essential in the manufacture of certain fertilizers, and the cost of fertilizers is dependent to some extent on the market value of ammonia. Of extreme significance at this time, however, is the fact that the most important chemicals used in making ammonium nitrate and other explosives are readily made from ammonia, and every quart of America's already small supply of this substance that can be saved means more power to America's armies.

Thus the farmer is interested in the conservation of ammonia not only from a national standpoint but because of his personal interests. Ammonia saved through harvesting of natural ice means more ammonia for fertilizers and more ammonia for ammunition. The man who harvests ice now and stores it in pits or ice houses may have the satisfaction next summer of helping out his neighbor who depended on an ice plant.

In addition to the saving of ammonia, conservation of coal is to be effected through the harvesting of natural ice. American ice factories and refrigerating plants, according to figures of the United States Fuel Administration, use annually 15,000,000 tons of coal.

SAVE THE SOFT CORN.

Immediate Steps Must Be Taken to Prevent Loss of Large Amounts of Immature Grain.

Much has already been written concerning the handling of the present crop of soft corn. The condition of the crop, however, throughout a considerable portion of the corn belt is so much poorer than anything experienced for many years that there is apparently a lack of full realization of the seriousness of the soft-corn problem in the present crisis.

The soft, immature, and frosted corn covers an area which yields more than half of our total production. Early shipments from the frosted-corn territory showed, in many instances, a moisture content of 35 or 40 per cent and more. Much of this corn in earlier shipments reached the markets in a hot and damaged condition, unfit for human consumption, and often scarcely fit for feeding stock.

During cold, freezing weather this corn can be moved with but little danger of getting out of condition, but with the advent of warm weather during the early spring months the losses in shipping this corn will be increased many fold. To save as much of this soft corn as possible it is necessary that all interests cooperate to the fullest extent.

Throw Out Damaged Ears.

Owing to the late season much corn is still in the field unhusked. As this corn is husked, soft and damaged ears should be picked out and stored separately for use on the farm as far as practicable. Corn that has already been cribbed without sorting should be worked over during weather unfit for husking. This is especially true if stored in large cribs without special ventilation. Corn in large, broad cribs freezes during the winter months, and, while frozen, appears to be dry. Investigations, however, have shown that corn in large cribs dries out but little until the weather begins to warm up in the spring. But with the excessive moisture in the soft, frosted, and immature corn, it is practically certain that there will be further spoilage and heating of the soft corn in large cribs as the weather warms up, before the winds of March and April can dry the corn enough so that it may be held in the crib without serious loss.

Store in Ventilated Cribs.

Corn which has been well husked and stored in cribs with improvised ventilators through the corn to facilitate drying will probably carry into the summer with safety.

Keep Soft Corn Moving.

Operators of country elevators should exercise considerable care to prevent the accumulation of large stocks of soft corn which can not be shipped before warm weather. Soft corn, shelled while frozen and stored in elevators, will go out of condition very quickly whenever there is an appreciable increase in the air temperature during the period commonly known in the grain trade as the germinating season. Soft corn in excess of what can be profitably fed on the farm where produced should be transported, if possible, to other localities for feeding cattle and hogs. Corn which can not be promptly fed to advantage should be shelled and shipped to market while cold or frozen, to be dried.

Market Frozen Corn Now to Avoid Losses.

Practically all of the grain centers are amply equipped for the artificial drying of corn under normal conditions, but the quantity of corn of the present crop to be dried so far exceeds the normal that it is important that a considerable percentage be moved to markets while still frozen. In the event that the free movement of this corn is delayed until the spring months, it is evident that the capacity of the driers will be greatly overtaxed and the terminals glutted with hot and sour corn, with losses that will be most serious.

Drying at temperatures of 135° to 140° F., and increasing the time of drying, will materially reduce the percentage of cracked and broken kernels. If high-moisture corn is dried, to be held in storage for several weeks, the moisture content should be reduced to 14 or 15 per cent, depending somewhat on the season and climatic conditions.

Skrinkage in Dried Corn.

In drying it is important to remember that the loss in weight due to drying is often considerably greater than the difference in the moisture content before and after drying. The following table will serve to show the importance of this factor.

Original moisture content.	Moisture content after drying.	Difference in moisture content.	Loss in weight.
Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
45	15	30	35.3
40	15	25	29.4
35	15	20	23.5
30	15	15	17.7
25	15	10	11.8
20	15	5	5.9

To the loss in weight, as shown in the foregoing tabulation, must also be added the loss in handling, which is greater in dried than in natural corn.

Salting of Corn Retards Heating.

The salting of ear corn in cribs will retard and in many cases prevent heating. The salt acts not only as a preservative but aids in drawing the water from the corn, which then evaporates if the corn is stored in well-ventilated cribs so that the air can circulate freely through it. The department has carried on no special experiments with salted corn, but the quantity of salt recommended ranges from one to two barrels per 1,000 bushels of corn. This condition, however, will not apply to shelled corn stored in elevator bins where a free circulation of air through the corn is impossible. Shelled corn of high moisture content should be artificially dried.

Seed-Corn Situation Serious.

The seed-corn situation in the States of Ohio, Indiana, Illinois, Iowa, Nebraska, South Dakota, North Dakota, Minnesota, Wisconsin, and Michigan is fully as serious as the handling of the present crop. Old corn in any of these States should be carefully preserved for seed. Farmers having more than necessary for their individual needs should make every effort to see that it is made available for others. In addition to the frost damage, the severe freezing weather has further rendered much of the high-moisture corn unfit for seed. No corn in these States should be planted without first testing carefully for germination. This testing should not be delayed.

Summary of Measures for Preventing Losses of Soft Corn.

Soft corn which has been stored in large cribs during cold and freezing weather, without specially improvised ventilators, is practically certain to get out of condition as soon as the weather warms up in the spring. To preserve such corn farmers should work it over, remove any damaged ears, and put in ventilators.

The best way to dispose of soft corn is to feed on the farm all that can be consumed to advantage, but don't waste it.

The concentration of shelled corn in country elevators during the next few months is practically certain to lead to disaster unless it can be transported to feeding centers or to terminals for drying before what is popularly known as the germinating season.

Whenever practicable the drying temperature should be lowered and the time of drying increased, to prevent excessive breakage.

All old corn should be carefully saved for seed, as the bulk of the present crop in the Northern States will be unfit for planting.

Do not delay the securing of suitable seed.

Do not plant any corn without first knowing its germination.

There are many well-known methods of supplying the necessary vegetable matter to the soil. Crop residue is usually the basis of more humus. Grass or sod crops are the most valuable in this respect. Stable manure is also of great value in increasing humus. Winter cover crops, such as annual clover, vetch, or rye, are now extensively grown to be turned under in the early spring.

HENS NEED FRESH AIR.

Ventilation in the Poultry House an Important Factor in Winter Egg Production.

Pure air is as necessary for fowls as clean water and good feed. When hens are confined to badly ventilated houses in winter they lose vitality, produce fewer eggs, and often become sick and stop laying.

Good ventilation is needed also to keep the house dry. When the circulation of the air in a poultry house is poor in cold weather, moisture collects on the inside of walls and roof. At a freezing temperature, under such conditions, there is a rapid accumulation of "frost" on these surfaces, which makes the house very uncomfortable.

When the temperature rises above freezing again, this frost melts and runs down the walls and trickles from the roof. First the air in the building becomes saturated with moisture, then the litter on the floor.

If the house is not overcrowded and is insufficiently ventilated for only a day in cold weather, no great harm is done. In an overcrowded house conditions become insanitary in a few hours. Even in a house properly stocked conditions at the end of one day of impure air are noticeably bad, and, unless promptly corrected, grow steadily worse.

Regulating Ventilation.

Ventilation to provide pure air and dryness in a poultry house is simply a matter of keeping doors and windows open as much as is necessary to keep the walls dry. Few poultry keepers have any difficulty in this until the temperature goes low enough to freeze water in the house. Then the tendency is to close doors and windows to keep the house warm.

This is the right idea, subject to the practical limitation that the house must not be closed so tight that the supply of fresh air is insufficient and the circulation of air is retarded to such an extent that moisture collects on the walls. The proper regulation of ventilation insures pure air and dryness and keeps the house as warm as is practicable without the use of artificial heat or special provision to absorb an excess of moisture. The adjustment of doors and windows to provide the conditions required must be learned by observation.

The general rule is to open doors and windows as much as is necessary to keep the house dry in cold weather, and to keep them wide open when water in the house will not freeze.

Ventilating Through Cloth.

Cheap cotton cloth and common burlap are often used in some of the windows of a poultry house in place of glass. Cotton cloth is to be preferred for this purpose because it is cleaner and admits more light. When both cloth and glass windows are used the most common practice in cold weather is to keep the glass windows closed all the time; to open the cloth window wide on clear days and close it as much as seems necessary at night and on stormy days. When the winters are generally mild cotton cloth is sometimes used in all windows.

Reducing Moisture with Low Ventilation.

Usually a house can be run with a good deal of ventilation in all but the very coldest weather. Birds can stand quite low temperatures provided their combs do not get frosted. Where there is much hard freezing weather the most effective way that has been found to keep a poultry house warm and dry is to place dry straw or hay, to the depth of a foot or more, overhead on a floor of boards laid as wide apart as may be and still hold the straw.

Dry straw will usually absorb all moisture, and so, when it is used, the poultry keeper must judge by the air in the house how much to keep doors and windows open. A breed that will not stand the temperature when ventilation is regulated in this way is not suited to the climate.

Male Birds Need Special Care.

The hens of all breeds, having smaller combs than the males, can stand much lower temperatures. As the proportion of females to males kept is usually about ten to one it is not economical, under extreme weather conditions, to regulate the house to suit the males. When the house as operated for the hens is too cold for the males, the usual practice is either to put the males temporarily in a warmer place, or to put them at night in small coops in the same house. As a rule, the occasion to do this arises only a few times in a winter.

SUCCESSFUL COMMUNITY FAIRS.

The educational and recreational benefits of community fairs may be had, inexpensively, by any community if the cooperative plan suggested by Farmers' Bulletin 870 of the United States Department of Agriculture is followed. The community fair is described as a county fair with commercialized amusements omitted. The community fair serves as a feeder to the county and larger fairs. One Middle Western county recently had a county fair composed of seventy-two community exhibits. There were no races or side shows, and the 10,000 visitors spent their time in inspecting its exhibits and in wholesome recreation.

Provide 4 or 5 inches of good, clean litter on the floor of the pultry house in which to scatter the grain feed. The hens must exercise in order to get the grain, and this promotes health and egg production.

HIDE IMPORT RULES.

New Regulations Issued by United States Treasury Department and Department of Agriculture.

All hides of neat cattle, calfskins, buffalo hides, sheepskins, goatskins, and deerskins may be imported from any country maintaining an efficient veterinary inspection system when accompanied by a certificate signed by an official veterinary inspector of such country or, in his absence, by a United States consular officer stating that anthrax is not prevalent and neither foot-and-mouth disease nor rinderpest exists in the localities in which the hides or skins originate.

Denmark, Brazil, and Venezuela are added to the countries from which abattoir hides and skins may be imported without disinfection when accompanied by certificate of an official veterinarian of the country stating that the animals from which the hides or skins were taken were free from disease at the time of slaughter.

These are new provisions in regulations issued by the United States Treasury Department and Department of Agriculture governing the handling and control of hides and other animal by-products.

Regulations for Disinfection.

It is also provided by the regulations that disinfection methods for hides, skins, and other material shall be approved from time to time by the Chief of the Bureau of Animal Industry of the United States Department of Agriculture. This official is authorized to revoke any methods which have been approved by him. Hides or skins not accompanied by the prescribed certificates, or which are accompanied by certificates not complying with the regulations, may be imported from any country upon condition that they will be consigned from port of entry to an establishment having proper facilities for sanitary control and disinfection; that they will move from port of entry to the establishment in cars or approved containers, sealed either with customs seals or seals of the Department of Agriculture; that their handling will be in accord with the regulations; and that they will be disinfected by one of the approved methods.

Railroad Companies Must Disinfect Cars.

Transportation companies are required to label cars carrying uncertified or non-disinfected products. If it is necessary to unload en route any of the products specified in the regulations, the car from which the transfer is made, and any part of premises at the point of transfer which may have been contaminated, must be cleaned and disinfected by the transportation company.

The regulations are made applicable to all hides, fleshings, hide cuttings, parings

and glue stock, sheepskins and goatskins, or parts thereof, hair, wool, and other animal by-products, hay, straw, forage, or similar material offered for entry into the United States from any place under the jurisdiction of the United States to which the animal quarantine laws of this country do not apply.

Detailed rules for the disinfection of cars, boats, other vehicles, and premises are contained in the regulations, which became effective January 1, 1918, and are set forth in joint order No. 2, by the United States Treasury Department and Department of Agriculture.

AVOID COWPEA DISEASE.

Prevent Injury from Root-Knot by Securing an Unmixed Supply of Iron, Brabham, and Monetta Varieties.

When a crop of cowpeas die prematurely or produce poor yields the trouble probably can be traced to the eel-worm, or nematode, which lives in the soil and which causes root-knot—a disease to which ordinary varieties of cowpeas are very subject. But there is an easy way to avoid the loss caused by eel-worms; plant varieties that are highly resistant to root-knot. The Iron, Brabham, and Monetta varieties—and only these—are highly resistant to the disease. To plant other varieties on land infected with the nematode is a dangerous practice, for it not only means a reduction in the yield of the crop but will permit the eel-worms to reproduce to such an extent that the next crop may be more severely damaged than the first.

To be certain of having seed of the varieties known to be root-knot resistant, the supply of which is limited, farmers should take steps to procure them at once. It is of paramount importance that unmixed seed of these varieties be secured. If Iron, Brabham, or Monetta seed mixed with those of susceptible varieties, such as Taylor, Whippoorwill, or Early Buff, are planted on infected land which contains the root-knot nematode, considerable losses may follow. Many so-called failures of the resistant varieties to withstand root-knot are due to planting mixed seed.

As far as practicable, obtain seed from local sources, not only because of overtaxed railroad facilities, but also because such seed seem to be as well if not better adapted than those brought in from other regions. If difficulty is encountered in carrying out the above suggestions, consult the local county demonstration agent, write to the State agricultural experiment station, or communicate with the Bureau of Plant Industry, United States Department of Agriculture.

INSECT EATS TOBACCO.

Tobacco Beetle Thrives on Cigars and Cigarettes in Storage and Show Room.

The destruction wrought by the tobacco beetle has become so pronounced in this country that the United States Department of Agriculture has issued a bulletin on the subject for manufacturers and dealers in tobacco products. While tobacco is known as an insecticide or as a repellent for some insects, it has no terrors for this beetle, which prefers the expensive, sweet, mild tobacco, especially the best Turkish leaf. A very few of them, in factory or show room, may start an immense amount of damage.

The beetle is a small brownish insect only one-tenth of an inch long. Most of the damage is done by the young, or larvæ, a yellowish-white grub somewhat larger than the adult. While it is impossible to estimate the total losses in a year, the figures for the industry as a whole are said to be very large. Single firms report losses as high as $25,000 a year.

The burrows of the larvæ, left filled with dust and excrement, may extend in any direction, and may go through the wrapper of cigar or cigarette at any point. Injured cigars do not draw well, and burn unevenly; moreover dust and trash is likely to be drawn into the mouth of the smoker. Leaf tobacco in storage, and chewing tobacco also, may be badly worm eaten and made unsalable.

Beetles Come from Tropics.

Although the beetle is now found in all parts of the temperate zone, its spread is from warm tobacco-growing countries such as Cuba and the Philippines, where it breeds throughout the year. From these countries the insects are sent out constantly in shipments of cigars or leaf tobacco, either in the egg, larval, or pupal stages, or as adult beetles.

The insect lives in the tobacco during its whole life, and thrives best with considerable warmth and moisture. In the Southern States there are three or four generations in a year. It does not live on growing tobacco and is not introduced from the fields.

How to Control the Beetle.

Although a number of insects prey on the beetle, methods of artificial prevention and control are necessary. Prevention is important and all places of manufacture and storage should be thoroughly screened and all refuse material, damaged stock, etc., promptly destroyed. The protection of the finished product is particularly important, since with most classes of manufactured tobacco the process of manufacture frees it from all stages of the beetle present in the raw material, including even the eggs, which are only loosely attached to the tobacco leaves.

Cold storage affords a good method of control, temperatures between freezing and 65° F. being effective as long as the tobacco is in storage, but the activity of the beetle is resumed after such storage. Lower temperatures, such as 12° F., for from one to four weeks kill all stages. Care must be used to bring the cigars out on dry days. This prevents sweating and consequent discoloration or warping of the containers. Winter freezing kills, and sudden and extreme changes of temperature are particularly effective. High temperatures, around 140° F., will serve as well as freezing.

Fumigation with hydrocyanic-acid gas is sure when carried out properly, but the process of generating the gas must be understood thoroughly and the greatest precautions taken, as it is a deadly poison. Carbon bisulphid is less effective but more easily used and less dangerous to the operator. When mixed with air its vapor is explosive in about the same degree as gasoline, however, and it must therefore be handled with care, and should not be breathed unnecessarily. In spite of the odor of the chemical it does not taint the tobacco or affect its aroma and quality.

A full discussion of the beetle and how to prevent loss from it can be had in Farmers' Bulletin 846, by G. A. Runner, of the Bureau of Entomology. It will be sent on request from the Department of Agriculture, Washington, D. C.

PRAISE TICK ERADICATION.

Texas Cattle Owners Appreciate the Freeing of Their Herds from Fever Tick.

The following statements in regard to the benefits from eradication of the cattle fever tick, made by cattle owners of Young County, Tex., have been received by the United States Department of Agriculture.

J. W. Batchler, New Castle, stated he had between 1,000 and 1,200 ticky cattle at the beginning of last year; that they were dipped 10 times in the dipping season, and that this year not a single fever tick has been found on his cattle.

G. G. Casey, Graham: "I have dipped my milk cows, also my stock cattle and steers, with good results and believe that tick-free cattle are a necessity. I think that regular 18-day dipping is a success."

More Beneficial for Dairy Cattle.

W. C. Burns, Graham: "I believe that the dipping is more beneficial for dairy

cattle than beef cattle. I also believe that you will get more milk and have thrifty cattle if dairy cattle are dipped, provided they are handled carefully to and from the vats."

Charles Keen, commission merchant and stockman, Graham, stated that last year he dipped his cattle nine times, and that he never had had cattle that thrived so well as those thus treated. In previous years he lost 10 to 12 head of cattle each year, while no cattle were lost from that cause since systematic tick eradication was begun.

Joe Heighton, Graham, stated his milk cows were dipped during the last two years, and that he has seen no evidence of a lessened milk supply resulting from dipping; he has not heard of a case of tick fever among the town cows since systematic dipping began.

Dr. R. W. Rutherford, practicing veterinarian, Olney, stated that he has not heard of a case of cattle fever in Young County since systematic tick eradication began, while in previous years losses from cattle fever were common; in the past year he has not heard of any cattle losses attributed to dipping, and farmers and stockmen of the county are well pleased with the work they have accomplished.

DON'T FEED CORN FIT FOR SEED.

Because they do not realize that Michigan, Wisconsin, Minnesota, the Dakotas, Oklahoma, Texas, etc., are seriously in need of seed of adapted varieties, there are farmers here and there throughout the United States who are feeding corn that would be more valuable if used for seed.

To the detriment of the 1918 crop such corn is being used to some extent in some portions of the States mentioned. This is especially regrettable because the corn is adapted to the conditions and is not a great distance from where it will be sadly needed next spring.

Ordinarily seed corn should not be obtained from a distance. The nicest-looking seed may be entirely unadapted and cause the loss of a crop. As there is but little "hold over," the frost-stricken and drought-stricken areas must get their seed from other points. It should be obtained from a locality having a similar climate, and obtained now.

If you have a large amount, or but a few bushels, of a 90-day corn which germinates well, let your county agent, your State experiment station, and the United States Department of Agriculture know about it. Prompt cooperation should prove profitable to all and prevent many failures next year.

One rat will eat or spoil four bushels of grain a year. It costs $2 or $3 a year to feed a rat on your place.

POTATO DISHES.

Give Potatoes More Prominent Place in Bills of Fare—This Season's Crop of Tubers Unusually Large.

The eating of more potatoes for supper, or for luncheon if the family is accustomed to have dinner at night, is a suggestion of the United States Department of Agriculture, in order that the tremendous crop of tubers produced in the United States this year may be utilized as fully as possible and spoilage avoided. Such increased use should, at the same time, bring about a saving of grain, since one common result of eating more potatoes is the eating of less wheat bread, which is a reasonable suggestion when one remembers that both of them are used as a source of starch in the diet. This reduction in grain consumption is desirable, the department points out, and there is great need of grain for shipment to our soldiers and to the soldiers and civilians of other countries engaged with us in the war against Germany.

TRY A NEW WAY.

It is claimed that there are more than 100 ways to cook potatoes, from the primitive (and still probably the best) methods of boiling or baking with the skins on to the most complex and seasoned dishes. Here are some of the ways known to the United States Department of Agriculture. Have you tried them all, or do you know about as many more?

Boiled.	**Plain fried.**
Chips.	**French fried.**
Lyonnaise.	**Gauffre.**
Mashed.	**Soufflé.**
Pan browned.	**Riced.**
Salad.	**In hash.**
In chowders.	**Biscuits.**
Baked.	**Sauté.**
Shoestrings.	**Creamed.**
Hashed brown.	**Croquettes.**
Mashed fried.	**Au gratin.**
Stuffed.	**Soups.**
In fish cakes.	**In stews.**
In light bread.	**In meat-pie crust.**

Make Good Luncheon Dishes.

The use of more potatoes for luncheon should be a simple matter, in the opinion of specialists of the Department of Agriculture, since practically all Americans like potatoes and since there are numerous ways in which the tubers may be prepared to avoid a sameness in the diet. Potatoes, even in their simplest forms—baked and boiled—make good luncheon dishes. They may also be used for making a variety of dishes, such as creamed and escalloped potatoes, with or without cheese; stuffed potatoes; potato croquettes, and so on. Combination dishes, such as hash, stews, meat pies with potato crust, and so on, in which a considerable amount of potatoes is used with other foods, may constitute practically an entire luncheon, being hearty enough to serve for the purpose with a little salad or fruit or sweets.

The following recipes for potato dishes are a few of the many which the housewife will find useful in preparing supper or luncheon:

Panned Potatoes.

Cut cold boiled potatoes into quarter-inch slices; dredge lightly with flour and fry in pan with a little butter. When light brown, heap on side of pan; let stand a few minutes, then loosen with a knife and turn out on a platter in much the same way that an omelet is taken out. Sprinkle with salt and serve at once.

Potato and Pork Stew.

3 or 4 slices salt pork cut in small pieces.	½ cup water.
4 medium-sized potatoes.	¾ teaspoonful salt.
1 onion.	¼ teaspoonful pepper.

Fry the pork in a deep frying pan until it is light brown; then to the pork and fat add the potatoes cut in one-half-inch slices, and thinly sliced onion and seasonings. Add the water, cover closely and cook until the potatoes and onions are soft. The mixture should be stirred occasionally in order that the pork and vegetables may be thoroughly mixed. The "stew" as it was called in old times—for it is an old-fashioned dish—should be moist but not thin.

Scalloped Potatoes.

Wash and pare potatoes; let them soak for a half hour, and cut in one-fourth-inch slices. Butter a baking dish, put in a layer of the sliced potatoes, sprinkle with salt and pepper, dredge with flour, and dot over with one-half tablespoon of butter. (A little grated cheese may be sprinkled over each layer if desired.) Repeat until the baking dish is nearly filled, then cover with hot milk. Bake one and one-fourth hours in a moderate oven, or place on the back of the stove and cook slowly.

Potato Salad.

Cut cold boiled potatoes into half-inch cubes and season with salt and pepper, or a few drops of onion juice if desired. Heap in a mound in a salad dish and pour over all a cooked salad dressing; and, if one wishes, garnish around edge with a circle of lettuce and hard-boiled eggs.

For variety add to 2 cupfuls of potato one-half cupful of diced cold boiled beet and 2 tablespoons chopped parsley or cheese; carrots and a little chopped celery leaf may be used if preferred.

Many cooked or canned left-over vegetables may be attractively used for salads. Diced turnips and carrots are often used in potato salad. Left-over beans, peas, etc., with finely diced potato, may be used to fill tomato cups and served with any preferred dressing.

Cooked Salad Dressing.

2 eggs.
3 tablespoonfuls vinegar.
3 tablespoonfuls water (cold).
½ teaspoonful salt.
2 teaspoonfuls sugar.
¼ teaspoonful mustard, if desired.

Beat the eggs until light, then add salt, sugar, mustard, water, and vinegar and beat thoroughly. Cook over boiling water until thick, stirring constantly. Pour the hot dressing over the cold potatoes, and set away until cold. If preferred one can let the dressing get cold before using it, and this is best if other vegetables are used with the potato.

Potato Fritters.

2 cups hot mashed potatoes.
4 tablespoonfuls milk.
1 teaspoonful salt; cayenne pepper, few grains.
2 eggs.
½ cup flour.
⅛ teaspoonful grated nutmeg.

Add the milk and seasoning to the potatoes, then the eggs well beaten. Set in a pan of cold water and beat until cold. Add flour, mix well, and drop by spoonfuls in deep fat. Fry until brown and drain on brown paper. Put one-half teaspoonful jelly in each spoonful before frying. Roll in powdered sugar when done.

NEW FARMERS' BULLETINS.

Control of Diseases and Insect Enemies of the Home Vegetable Garden. (No. 856.)
The Community Fair. (No. 870.)
The Bollworm or Corn Earworm. (No. 872.)
Raspberry Culture. (No. 887.)
Back-Yard Poultry Keeping. (No. 889.)
How Insects Affect the Cotton Plant and Means of Combating Them. (No. 890.)
Spring Oat Production. (No. 892.)
Breeds of Dairy Cattle. (No. 893.)
Everbearing Strawberries. (No. 901.)
The Self-Feeder for Hogs. (No. 906.)
Bean Growing in Eastern Washington and Oregon and Northern Idaho. (No. 907.)
Killing Hogs and Curing Pork (No. 913.)

TO HELP TEACHERS.

Teachers who wish to interest their pupils in home floriculture and landscaping will find the circular on this subject prepared by the States Relations Service of the United States Department of Agriculture helpful and practical. It gives outlines for a course of study and classroom practice and suggests methods for correlating school study with home practice.

Cold, clean storage is important for many cooked as well as raw foods. Moist vegetables, cooked fruits, moist made dishes like meat pie and similar dishes are particularly liable to spoil or sour unless given special care.

FARM-HELP SPECIALISTS.

Department of Agriculture Assigns Representatives to Deal with Farm-Labor Problems.

To cooperate effectively in the farm-labor problem with the United States Department of Labor, State councils of defense, State commissioners of agriculture and labor, and other official State and local agencies concerned with supplying needed farm labor, the Department of Agriculture has divided the country into four farm-labor divisions: (1) New England and Northeastern States, (2) Southern States, (3) North Central States, and (4) Western States.

Each of these divisions is in charge of a representative of the Department of Agriculture, known as a supervising farm-help specialist, who supervises the work of the department's farm-help specialists assigned to the farm-labor work in single States or two or more adjoining States. These farm-help specialists will cooperate directly with State agencies, central and local employment agencies of the United States Department of Labor, and with the county agents and community farm-help committees which will be charged directly with meeting labor needs in their specific localities.

The farm-help specialists through preliminary labor surveys will endeavor to ascertain in advance the prospective needs for extra labor in each community. They will work with State and local agencies to supply labor deficiencies from local supplies if possible, or from the nearest point where labor can be secured outside the community in need of assistance. All local sources of labor first will be drawn upon, and only when the fullest possible utilization of local labor proves inadequate will labor be brought in from outside. In cases of necessity, however, through the Department of Agriculture and the Department of Labor, arrangements will be made for interstate movement of help, in which the Department of Labor will cooperate in obtaining extra labor for farm purposes from the populous communities.

How the Farmer Finds Help.

It is pointed out that the farmer in need of labor should proceed as follows: He should report his need to his county agent or to a member of the community farm-help committee. If possible, his need will be supplied from lists of men available in the county. If local labor is inadequate, the county agent or committee will report to the State farm-labor specialist, who, in cooperation with the State officials, will draw on the nearest available labor within the State.

A farmer who does not know the name of his county agent or those on the community committee should make known his need to his State farm-help specialist, who will direct his request into the proper channels and answer questions on farm-help problems.

The Farm-Help Specialists.

The supervising and State farm-help specialists of the Department of Agriculture are given below. The grouping of the large States is temporary, as the plan contemplates appointing a State farm-help specialist for each of the large agricultural States.

New England and Northeastern States.—E. K. Eyerly, supervising farm-help specialist, Office of Farm Management.
Connecticut and Rhode Island, David Elder, 416 Federal Building, Providence, R. I.
Delaware and Maryland, W. M. Hillegeist, 506 Stewart Building, Baltimore.
Maine, C. C. Fowles, Agricultural College, Orono.
Massachusetts, D. W. O'Brien, room 136, State House, Boston.
New Hampshire and Vermont, F. C. Bradford, 488 Central Street, Manchester, N. H.
New Jersey, Frank App, Agricultural College, New Brunswick.
New York, J. W. Robson, Agricultural College, Ithaca.
Pennsylvania, R. W. Meyer, seventh floor, Finance Building, Philadelphia.
Virginia, E. W. Lawson, fourth floor, Davis Building, Richmond.
Southern States.—Geo. A. Maloney, supervising farm-help specialist, Mobile, Ala.
Alabama, L. L. Gilbert, Clover Leaf Jersey Farm, Montgomery.
Florida, W. A. Dopson, Agricultural College, Gainesville.
Georgia, J. E. Bodenhamer, Agricultural College, Athens.
Louisiana, J. F. Harbert, Jennings.
Mississippi, E. L. Roberts, Agricultural College.
North Carolina, I. H. Faust, Ramseur.
Texas, T. W. McClellan, box 266, Capitol Station, Austin.
Oklahoma and Arkansas, G. W. Vincent, Stillwater, Okla.
Kentucky, Tennessee, West Virginia,[1] A. J. Dadisman, Agricultural College, Morgantown, W. Va.
South Carolina, specialist to be appointed.
North Central States.—R. D. Bailey, supervising farm-help specialist, Gaylord, Mich.
Illinois, Ohio, Indiana, Missouri,[1] W. H. Young, Agricultural College, Urbana, Ill.
Michigan, A. B. Cook, Owosso.
Nebraska, E. L. Rhoades, Agricultural College, Lincoln.
North Dakota, John C. Brown, Agricultural College.
South Dakota, W. C. Boardman, Brookings.
Wisconsin, Jos. A. Becker, 241 Fourth Street, Milwaukee.
Kansas, specialist to be appointed.
Iowa, specialist to be appointed.
Minnesota, specialist to be appointed.
Western States.—M. O. Evans, supervising farm-help specialist, 1931 Home Street, Berkeley, Cal.
Arizona and New Mexico, J. O. Miller, Las Cruces, N. Mex.
California, R. L. Adams, Berkeley.
Montana, E. L. Currier, Agricultural College, Bozeman.
Oregon, J. H. Brewer, Portland
Washington, J. C. Scott, Pullman.
Colorado, D. W. Thomas, Chamber of Commerce Building, Denver.
Utah, J. W. Watson, Logan.
Idaho, specialist to be appointed.
Wyoming, specialist to be appointed.
Nevada, specialist to be appointed.

[1] Temporary grouping.

DEFINES A TORNADO.

Causes and Effects of Windstorms—When They Occur—Precautions to Avoid Injury.

The United States Weather Bureau has issued a series of warnings and definitions of tornado conditions which are briefly summarized below.

It says that tornadoes are usually preceded by high temperature and humidity—a weather condition generally said to be "sultry," "sticky," or "oppressive." Rain may come before, with, or after a tornado, or, very rarely, there may be no rain at all. The barometer does not foretell a tornado, though it indicates low pressures; and tornadoes always occur in a "low" area.

The season in which tornadoes may be expected varies according to the region. They may visit the Gulf States in winter, and as the season advances the region of greatest frequency is in the Plains States and the Mississippi Valley, from April to September, inclusive. In this region May is the worst month, with April next. East of the Appalachian Mountains, however, tornadoes rarely occur until after July. Generally they come between 3.30 and 5 p. m., but they may even come at night.

What to Do.

Persons may somewhat avoid tornado danger by watching the local signs and reading the weather maps, which at least show the conditions which favor tornado formation. The local signs are heavy, dark clouds, first in the southwest, almost immediately followed by clouds in the northwest and north. A funnel-shaped cloud is a sure sign, though there may be a tornado when such a cloud is not readily seen. If a funnel cloud can not be seen, the whirling motion of the air may be known by a peculiar roaring noise, somewhat like the rumble of distant thunder or the approach of a heavy train of cars.

If one can see the cloud and get an idea of the direction in which it is moving, the zone of safety is at right angles to the direction of motion. The southern margin is usually more dangerous than the northern, and this should be remembered in seeking a place of safety. The width of the path of greatest destruction is ordinarily not more than a few hundred yards, though this destructive diameter may be from some rods wide to a half mile, or sometimes wider. However, the worst part is comparatively narrow, and relative safety may be had only a short distance at right angles to the line of the advance of the tornado.

In some of the Plains States there are so-called "cyclone" cellars, and where these are not available the southwest corner of the cellar of a frame building is the next best place. Brick buildings are not so safe, but the cellar is probably the safest place in them. In the Omaha tornado of 1913 very few brick houses were seriously damaged. These are ordinarily unroofed, though sometimes the walls crumble or fall outward.

Tornadoes and Cyclones.

Weather men define a tornado as a violent windstorm, with rain or hail, thunder and lightning, in which the air masses whirl with great velocity around a central core, while the whole storm travels across the country in a narrow path at high speed. The thunder and the whirling motion have given rise to two theories of the derivation of the word, as to whether it is derived from the Spanish "tronada," a thunderstorm, or from the Latin "tornare," to turn.

A cyclone, in the definition of the Weather Bureau, is not necessarily a windstorm of great velocity, but rather a widespread storm that moves with no great speed. Its width may cover several States. This cyclone, or area of low pressure—indicated as "low" on the weather map—gives conditions essential to tornadoes. Many cyclones never develop a tornado, but a tornado never develops without the cyclone, and almost invariably the tornadoes occur in the southeast quarter of the low area. About 120 cyclones pass across the United States each year, moving in a general way from west to east. They are of great benefit because they induce a movement of surface air from the south and southeast, and the rainfall that makes the great interior valleys a rich agricultural region is dependent upon these southerly, moisture-bearing winds.

Practically all of the cyclones of the warm season give rise at some time or place to thunderstorms or hail or violent winds. These winds may be violent enough to cause destruction, but unless they have the whirling column of air they are not tornadoes. In the East it is not always easy to distinguish the funnel-shaped cloud, but the lay of the débris after a storm will tell whether there has been a twisting motion.

Tornadoes almost invariably move in an easterly direction and generally from southwest to northeast. The average length of the path of destruction is about 25 miles, and this path may not be continuous, if the funnel cloud is not in contact with the earth during its whole course. Sometimes it rises and goes for a considerable distance before descending again.

A better understanding by farmers and producers of the complex marketing machinery would enable them to more intelligently choose between the many channels through which their products might be marketed.

HELP SECURE FIREWOOD.

Forest Service Assigns Experts to Aid State and Local Fuel Administrators.

In an effort to assist in relieving the fuel shortage, the Forest Service has assigned 10 of its experts to different sections of the country to advise with the State and local fuel administrators in regard to increasing the use of wood as a fuel. They will at the same time demonstrate, so far as possible, to farmers and other owners of woodlands methods of cutting timber by which suitable material can be removed for firewood to the advantage of the remaining timber. Plans for utilizing the supply of cordweod and wood waste in the neighborhood of towns and cities or from near-by woodworking plants will be worked out by the experts, who will also be able to give information regarding the fuel value of the different kinds of wood available.

It is believed by the Forest Service that, with a knowledge of methods of lumbering and of utilizing woods products, the experts will be able to assist materially in securing the needed supplies of fuel. Very often, they point out, cordwood can be brought down the many rivers of the country on steamboats or barges. In the suburbs of many cities there are extensive stands of second-growth timber which could supply large amounts of firewood. Municipal woodyards can doubtless be advantageously established at many points.

Join the "Cut-a-cord" Movement.

Through the county agents of the States Relations Service the farmers will be urged to join the "cut-a-cord" movement while other work is slack. It is pointed out that wood cut now and not burned this season will be well seasoned and ready for use next winter. Even in States having plenty of coal, like Pennsylvania, large amounts can be released for use elsewhere if the available wood is used instead.

Close cooperation between the Forest Service, the Fuel Administration, the State foresters, the county agents, and the other interested parties will, it is expected, result in increasing the amount of wood burned and consequently releasing the equivalent in coal. Farmers and other timber owners can at the same time get their woods in good shape by disposing of the defective and low-grade material.

An important function of live stock on the farm is to furnish a market for the crops grown, enabling farmers to convert the grasses, forage crops, legumes, and so on, into higher-priced finished products and to return to the soil the plant food taken from it.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., JANUARY 30, 1918. No. 26

NITRATE AT COST.

Secretary of Agriculture Announces Plan for Sale—Will Be Sold to Farmers Only.

The Secretary of Agriculture on January 18 announced the plan for the sale and distribution of the 100,000 tons of nitrate of soda for fertilizer use purchased under the provision in the food-control act which authorizes the President to secure nitrate of soda and to supply it to farmers for cash at cost. A circular in which the plan is fully set forth has been mailed to the county agents, who will receive orders for the nitrate and transmit them to Washington.

How to Apply for Nitrate.

The f. o. b. price at ports will be $75.50 a ton, farmers paying the freight charges from the port of arrival and the State fertilizer tag fee. The plan is that in each county where there is a county agent to have the agents associate with themselves three or more local business men in each community, who will serve without compensation, to assist them in the sale of the nitrate. In each county where there is no county agricultural agent a committee of three or more local business men will be appointed. A farmer living in such a county who desires to make application for nitrate of soda should, if he does not know the address of the local committee, address an inquiry to the State director of extension for his State. The post-office address of the director of extension in each State is given in the circular. The ships carrying the nitrate will be directed to the most convenient ports, including Charleston, Wilmington, Savannah, Norfolk, and Baltimore. Representatives, who also will serve without compensation, have been or will be selected to handle the shipments at these places.

Apply by February 4.

Farmers will make application for nitrate upon blanks furnished by the county agents or the local committees. Applications must be signed and returned so as to reach the county agents or members of the local committees by February 4. As the nitrate, under the law, can be sold only for cash, the farmer will be required to deposit the money covering the cost of the nitrate he wishes with the local bank, association, or individual to be designated by the department. The orders will be transmitted to the department, accompanied by the amount covering the same. If the quantity of nitrate that can be secured will fill all orders, each farmer will secure the amount he requests; otherwise it will be necessary to allot the nitrate to those applying for it so that all may participate on equal terms in its distribution. None of the nitrate will be sold to dealers, either directly or indirectly. It will be sold only to farmers directly for cash at cost, and generally not in excess of the amounts used by them heretofore.

The Government is making every effort to reach farmers who desire a part of this nitrate, but states that it will be impossible for the county agents or other persons to visit every individual farmer, and urges all who desire to purchase nitrate to get in touch with their local county agent or a member of their local committee.

All cereals should be kept in dry, well-lighted storerooms. Damp, dark cellars should never be used for storing foods.

More care is necessary in fattening calves than in feeding grown cattle, but, whenever possible, it is best to raise and finish beef cattle on the same farm.

If every farm home would keep a supply of pop corn and a popper convenient, fewer nickels would be spent for less wholesome knickknacks and more enjoyable evenings would be spent around the family hearth.

TRANSPORTATION FOR ALL FARM PRODUCTS.

Representatives of the United States Department of Agriculture, after conference at the office of the Director General of Railroads, were informed that the Director General has not promulgated a list of nonessential farm products which will be denied transportation facilities, and does not contemplate issuing any such order. Request was made that the Department of Agriculture disseminate this information as widely as possible to the farmers of the country.

The Director General believes that under the plan now being formulated it will be possible to provide adequate transportation for farm products this year. Farmers should place orders for cars when needed with local freight agents, as has always been the practice.

SOFT CORN MARKETS.

Survey Shows Sufficient Capacity to Take Care of All Shipments During This Crop Year.

The attention of the United States Department of Agriculture has been called to rumors which have been circulated in some sections to the effect that on account of the closing of many distilleries in accordance with the President's proclamation under the food-control act there will be no market for soft corn this year, with resultant losses to the growers. These statements have received more than usual attention by reason of there being an unusually large percentage of soft corn this year, due to early frosts and unseasonably cool, wet weather in many portions of the corn belt during September and October.

May Be Sold on Grade, or Dried.

Soft corn can be fed on the farm or it may be shipped to a market. When soft corn is shipped to a terminal market, it may be sold to a grain dealer on grade, or if the shipper prefers he may in many of the markets have it dried for his own account and sell it in the dried condition.

In many of the terminal markets soft corn can be sold direct to the concerns which operate the grain driers. This method of selling soft corn is in common use. The cost of drying is usually from three-fourths to 2½ cents per bushel, depending largely on the capacity of the plant. The loss in weight due to shrinkage depends upon the amount of moisture in the corn and the point to which it is dried. This subject is fully treated in Department Bulletin No. 374, entitled "The Intrinsic Value of Grain, Cottonseed, Flour, and Similar Products, Based on the Dry-Matter Content," and in Bureau of Plant Industry Circular No. 32, entitled "Moisture Content and Shrinkage in Grain."

A rough survey of the available grain driers and distilleries still in operation in the United States, made by the Offices of Federal Grain Supervision, located driers with a combined capacity of approximately 3,000,000 bushels every 24 hours.

It is probable that the total capacity of the driers and distilleries in the United States is somewhat larger than the survey figures show, as there is a chance that some plants have been overlooked in this hurried survey. In addition to these plants, there

are starch and corn-products factories which use considerable quantities of soft corn when it can be obtained. There are no driers or distilleries west of the Rocky Mountains.

It appears from the survey that there is a sufficient capacity to take care of all of the soft corn which will move this crop year.

Feed as Much as Possible.

Owing to congestion of shipments at many of the large markets, railroads are frequently unable to deliver soft corn promptly to driers and other industries where it can be handled. It is recommended that farmers and country shippers delay the movement of soft corn from the field and farms, unless conditions at the point to which the corn is shipped are such that the corn can be given quick attention. If corn is standing up well in the field, it should be left on the stalk as long as possible, as it will dry better there than anywhere else. After harvesting, soft corn should be stored in well-ventilated cribs until conditions for spoiling during shipment are reduced to a minimum. As much of it as possible should be fed on the farm, as the greatest return for it can usually be obtained that way.

TEST GERMINATION OF SEED CORN.

Even where seed corn has been carefully gathered and stored it should be thoroughly tested in the spring before planting. The best way to do this, says the United States Department of Agriculture, is to make a seed-corn testing box and test 100 ears separately.

Each kernel that is tested must be perfect, and not injured at the tip when it was removed from the ear. Hand shelling will give much fewer injured tips than machine shelling, and should be used with all seed corn. If three or more kernels out of ten from any one ear fail to grow it will be wise to test every ear in the entire supply of seed. If the 100 tested ears show no poor ones, further testing of the supply is unnecessary.

It must not be thought, says the department, that good results from the germination tests are a sure index of high productivity. Ears slightly damaged by poor preservation, as in damp storage places, may germinate well but will produce less than if they had got better care. Prevention is better than cure; and in the case of poor storage, according to seed-corn specialists, a cure is impossible.

Corn that was selected wisely in the field where it grew, that matured normally, and has been preserved properly in mouse and insect proof storages will grow and produce satisfactorily.

It is impossible to make sweet, clean-flavored butter from old, unclean cream.

REPORT ON CROPS.

150,000 Volunteers Help to Furnish Accurate Forecasts of What Nation's Farms Will Produce.

How the Government crop reports—important not only to farmers but to many and varied industries that depend upon agricultural products—are made to forecast accurately the amount of every American farm crop and are guarded closely to prevent their premature publication, is told in a publication, Government Crop Reports, issued by the Bureau of Crop Estimates of the United States Department of Agriculture.

The central office at Washington of the Bureau of Crop Estimates has approximately 135 employees, most of them statistical clerks, computers, and trained statisticians experienced in handling and interpreting agricultural facts. But this is only the hub of the Crop Estimates wheel. In addition to the salaried central office employees and the field agents and crop specialists, volunteers that number approximately 150,000, each does his bit in furnishing the mass of information that is tabulated, interpreted, and finally given to the public in figures that mean the observation and work of a small army.

Sources of Information.

Distributed over the country are 42 salaried field agents, one in each State or group of small States. These field agents are in the classified civil service, appointed only after passing a rigid civil service examination to test their educational and statistical qualifications. Preference in appointment is given to legal residents of the States in which assignments are made. Each is required to travel over his State systematically during the crop season and personally to inspect crops, interview farmers, representatives of commercial houses, mills, elevators, buying and selling associations of all kinds, transportation companies, State and local authorities, and associations of every description; in fact, each is expected to be better informed on crop production than any other man in the State. Each agent enlists the voluntary services of from 250 to 1,500 selected crop correspondents in his State, who report to him every month regarding the crops grown in the State. At the close of each month the agent makes up a detailed estimate on the crops in his territory and forwards it to the Washington office, with full explanatory notes showing the causes which have resulted in changes from the estimates for the previous month.

In addition to the regular field agents, the bureau employs 10 crop specialists, 1 each for cotton, rice, and tobacco, 4 for truck crops, and 3 for fruit crops. These crop specialists are of the same high character, experience, and educational qualifications as the field agents, and each devotes his entire time to investigating the single crop for which he is responsible. They travel throughout the regions in which their special crops are grown, maintain large lists of growers, and each is regarded as an authority on the statistics of his special crop. Lists are kept of growers of special crops, who report at the close of each month to the respective crop specialists, each of whom, in turn, makes up a report and forwards it to the central office in Washington.

A third class of reporters are the voluntary county crop reporters, approximately 2,800 in number, each of whom reports for his county on printed schedules directly to the bureau each month. The county reporters base their estimates upon personal observation and inquiry and upon written and telephonic reports to them from aids in different portions of the county.

A fourth source of information are the voluntary township reporters, one for each agricultural township in the United States, approximately 30,220 in number. These township reporters are nearly all practical farmers, and each reports on the crops grown in his immediate neighborhood directly to the central office in Washington monthly throughout the year.

Additional sources of information exist in the bureau's special lists of growers of potatoes, apples, cotton, beans, cranberries, peanuts, broom corn, maple sirup, honey, special truck crops, and live stock, and in other lists of buyers, dealers, mills and elevators, producers and shipping associations, and other agencies engaged in the handling, transporting, storing, and distribution of crops.

How Crop Reports Are Made Up.

The returns from each class of reporters are tabulated and averaged separately as a check one against the other. The county totals are weighted; that is, a county which produces five times as much of a particular crop as another receives five times the importance or "weight" of the other county in determining the average for that crop.

Every possible precaution is taken to prevent the totals for any of the so-called speculative crops, such as corn, wheat, oats, and cotton, from becoming known to any individual prior to the date fixed in advance by the Secretary of Agriculture for the issuance of the crop report. Even the computers who make up the totals do not know the States to which they pertain, and the final telegraphic reports and comments of the field agents relating to the speculative crops are kept locked in the office of the Secretary until crop-reporting day, when they are turned over to a crop-reporting

board, and the entire board is immediately locked in until the minute that the report is issued, guards being stationed at the doors, and all telephones disconnected.

The data supplied by the field agents, crop specialists, and various classes of voluntary crop reporters are considered by the crop reporting board, composed of the chief of the bureau, the assistant chief of the bureau, the chief of the division of crop reports, two statistical scientists, and one or more field agents called in from different States each month, all of whom are expert judges of crops and have had many years' experience in analyzing, interpreting, and summarizing crop data. In addition to the special data sent in each month by the field force, the crop reporting board has all other data which are available, such as the Weather Bureau reports, and such crop reports as are issued by State authorities, private crop-estimating agencies, associations, and others. From all these data each member of the board prepares his own individual and independent estimate for each crop and State. These are compared, discrepancies are discussed and explained, and a final figure is adopted by the board.

It is believed certain that the crop reporting board has before it at its sittings more complete, detailed, and accurate data than any other crop-estimating agency in the world. The members of the crop reporting board, like all other department employees who have anything to do with crop estimates, are prohibited by law, under severe penalties, from speculating in any product of the soil, from giving out any information in advance of the official crop report, and from knowingly compiling or issuing any false statistics.

Wherever it has been possible to secure an absolute check, the crop reports of the Department of Agriculture usually have been found to be surprisingly accurate.

VELVET BEANS POPULAR IN SOUTH.

The increased culture of velvet beans in the South during the last two years has been one of the most remarkable recent agricultural developments, according to United States Department of Agriculture specialists. Heretofore the culture of the velvet bean has been largely limited to Florida. With the introduction by the department of several new varieties, particularly the Chinese, and the development of other varieties by breeding, especially the Georgia and the Osceola, the culture of this bean has been extended to cover a large part of the cotton belt. It has proved especially adapted to sandy soils. It is estimated that the acreage planted to velvet beans in 1916 was at least four times that of any previous year, and it is not improbable, according to Federal specialists, that the 1917 acreage was at least four times that of 1916.

BIGGER CALF CROPS.

Increased Production of Cattle on Southwestern Ranges Through Improved Methods of Handling.

How grazing experts of the Forest Service have succeeded in improving the quality of the range and have developed methods of handling cattle which result in reduced losses and bigger calf crops is told in a preliminary report of the studies being made at the Jornado Range Reserve in New Mexico, issued as Bulletin 558 of the United States Department of Agriculture.

While the studies are as yet incomplete, it is stated that as a result of the improved methods grama-grass range on the reserve has improved 50 per cent in comparison with areas on which the grazing was uncontrolled. A system of stock-watering places has aided in the utilization of the range, while care in handling cattle, the gradual improvement of the herds, and vaccination against blackleg have resulted in a larger calf crop, increased returns from sales, and lower losses.

The Jornado Range Reserve contains about 200,000 acres. It was created in 1912 to secure a complete range unit for carrying on range experiments and is in charge of the grazing experts of the Forest Service, who are cooperating with a private cattle owner.

Light Grazing Improves Range.

The improvement in the range was secured, the report states, primarily by light grazing during the four months—July to October—when the grass is making its growth, by not over-grazing during the other eight months, and by a better distribution of stock-watering places. Light grazing on ranges of the Southwest is profitable, the studies have shown. It will probably not reduce the total animal day's feed furnished on a given area during the year and will reserve feed for the critical period from February to July and later in case of prolonged drought. Where the whole of a range unit is made up of grama grass about one-third of the area should probably be reserved during the growing season for two years in succession.

Emphasis is laid on the importance of developing a system of watering places. Where stock do not have to travel more than 2½ miles to water, fairly efficient use of plains and mesa range in the Southwest can be secured. This means that there should be one permanent and dependable watering place for about 13,200 acres. Such an acreage of grama-grass range will carry about 500 cattle throughout the year if properly managed. Wherever the distance between water holes is in excess of 2½ miles, utilization of the range becomes less efficient. Where it can be done the construction of tanks to supplement the permanent watering places will be a paying investment.

Increase in Calf Crop.

From a selected herd of 500 cows and 20 bulls, which was held in pasture away from other stock, an 81 per cent calf crop was branded in 1916. From the remaining 1,522 cows of breeding age on the reserve, a 69.2 per cent calf crop was branded. The average calf crop for the reserve was 72 per cent. It is doubtful whether the calf crop on adjoining unfenced range in 1916 reached 60 per cent, and this figure is believed to be a high average.

About 50 pounds of cottonseed cake per head was fed to the special herd. This is believed to have contribued largely to the added number of calves. The big opportunity for increasing the calf crop, says the report, is to keep poor cows in thrifty condition.

Small Loss Partly Due to Blackleg Vaccination.

The average loss of stock on the Jornado Range Reserve in 1916 was 1.5 per cent. The average losses for New Mexico are approximately 10.6 per cent for calves up to 12 months of age, 5.6 per cent for yearlings, and 5.8 per cent of other stock. The small loss on the reserve is attributed to careful systematic vaccination against blackleg, the reservation of grama-grass range for poor stock during the critical spring months, to the feed the animals received, and to prevention of straying. In extremely bad years some kind of roughage to supplement the range forage, for feeding with cottonseed cake or other concentrated feed, would be a decided advantage on southwestern ranges. Ensilage from soap weed has been tried on the Jornado Reserve and the results are promising, but not extensive enough to warrant definite conclusions.

The studies have shown without doubt, the report states, that the possibilities for decreasing losses justify stockmen of the Southwest in paying more attention to vaccination as a preventive of blackleg and to picking out and feeding stock in need of special care.

To meet a situation brought about by the severe winter and late spring in the West, arrangements were made to open the ranges in the national forests earlier than usual, and the number of cattle grazed was increased by approximately 350,000 over any previous year. Notwithstanding this action, the demand for grazing privileges could not fully be met. The possibilities of providing for further utilization of the ranges in 1918 are being studied.—Extracted from Annual Report of Secretary of Agriculture.

AVOID MAGGOT INJURY.

Careful Management Will Greatly Decrease Losses of Live Stock Caused by Fly Larvæ in Wounds.

Careful methods of live-stock management with some shifting of seasonal activities will greatly decrease the losses of animals due to the larvæ of flies, according to Farmers' Bulletin 857, "Screw Worms and Other Maggots Affecting Animals," by F. C. Bishopp, J. D. Mitchell, and D. C. Parman, just issued by the United States Department of Agriculture. Among the preventive measures advocated to minimize injury from maggots are the burning or deep burying of carcasses of animals; the arranging of breeding operations so that young stock will be born in late fall, winter, or early spring; the carrying on in winter and early spring months of branding, dehorning, and other operations resulting in wounds; the taking of steps about pens and fences and on range or in pasture to prevent injury to live stock; the destruction of ticks; and the poisoning and trapping of flies.

Burn or Bury Carcasses.

The burning or burying of carcasses is important, it is pointed out, since it is on such material that the maggots infesting wounds are chiefly dependent for propagation. If all decaying animal matter could be destroyed, the troublesome blowflies—the insects bringing about maggot infestation—would be practicably exterminated. The arrangement of breeding practices so that young animals are born during the cool months of the year and the management of dehorning and other operations so that wounds are made during the cool season only, would minimize the danger of infestation, since most of the flies are scarce at such times. The elimination of projecting nails, splinters, and barbs on buildings and fences and the clearing out of thorny underbrush on the range and in the pasture would prevent many accidental wounds in which maggots might develop.

Destroy Blowflies.

Flies often lay their eggs in blood spots formed on the hides of animals by the crushing of engorged ticks, and the maggots on hatching are enabled to enlarge the punctures made by the ticks and so enter the flesh. The destruction of ticks, therefore, reduces the liability of maggot infestation. Many blowflies can be trapped by exposing the carcasses of small animals or pieces of meat in traps about barnyards, in pastures, near water holes, etc. The bait should be changed every three or four days to prevent maggots reaching full development, and the flies caught should be killed also. By poisoning with arsenic the carcasses of large animals which can not be promptly burned or buried, large numbers of flies can be killed. The animals should be partly skinned, the flesh slashed, and a solution of 1 pound of white arsenic boiled in 5 gallons of water should be applied freely. After a few days the animal may be turned over and the other side treated similarly. The carcasses should then be burned or buried.

Treatment of Wounds.

Stock should be carefully watched and when the presence of maggots is discovered in wounds or in soiled wool appropriate remedies should be applied. Chloroform is the best remedy to apply to kill the maggots in wounds. After the wound is cleansed some effective fly repellent such as pine tar should be smeared over the wound and about its edges.

Copies of the bulletin already mentioned may be had free on applicatien to the United States Department of Agriculture, Washington, D. C., as long as the supply lasts.

BULLETIN AIDS POULTRY TEACHERS.

To aid teachers of poultry husbandry in secondary schools in presenting the poultry-raising opportunities to their classes, a specialist in the States Relations Service of the United States Department of Agriculture has prepared a teachers' guide on the raising of ducks, geese, and turkeys. Suggestions are made as to methods of presenting these subjects both in the classroom and in the laboratory, and study outlines calculated to help the teacher and student to correlate the home work with the work at school are given. The bulletin, known as States Relations Service Document 57, will be mailed free on request, while the supply lasts, to instructors or administraters of high-school agriculture.

MANY GET REMEDY FOR BLACKLEG.

In the last fiscal year, according to the annual report of the Bureau of Animal Industry, United States Department of Agriculture, 6,050,195 doses of vaccine for the prevention of blackleg in cattle were given out. This was an increase over the preceding year of more than a half a million doses.

Food is the fuel which furnishes the energy for all the bodily activities, as coal furnishes the heat to make the steam which drives the engine; but it does more than this—it also builds the body engine and keeps it in repair.

THE FIELD PEA.

This Legume Deserves Wider Use—Useful as a Rotation Crop for Hay, Grain, and Silage.

The field pea, sometimes known as the Canadian field pea, deserves even wider use than has been given it, according to a recent Farmers' Bulletin, "The Field Pea as a Forage Crop," published by the United States Department of Agriculture.

Since the field pea requires a cool temperature during its growth it is well adapted for spring and summer growth in the northern portion of the United States and in the comparatively high altitudes of the Rocky Mountain region, and for winter growth in the lower South. It is useful on the farm as a rotation crop for hay, grain, silage or green manure, and the peas may be used in the green state as a vegetable like garden peas.

Time of Planting.

In the North the field pea may be planted very early in the spring—even in northern Michigan, Minnesota, and Wisconsin, in late April or early May. In the extreme South it may be planted in November, and in the latitude of North Carolina in February.

The rate of seeding varies with the size of the seed of the different varieties—from 1½ bushels for the smallest to 3½ bushels for the largest when broadcasted. When sowed with oats the proportion of peas to oats should be two-thirds or one-half. The field pea is best sown with a grain drill.

Inoculation is necessary for field peas unless they are grown in ground in which bacteria are already present. In mowing the vines, attachments should be used on the mowers which will raise the tangled plants from the ground and prevent clogging the cutter-bar. Peas may be threshed in an ordinary grain separator with most of the teeth removed from the concaves and the speed of the cylinder reduced.

Harvesting for Various Uses.

The vines should be cut for seed when the pods are fully mature and the peas firm. For hay they are cut earlier, when most of the pods are well formed. When grown for hay, peas are usually planted with oats or some other grain crop.

When intended for use in silos peas usually are planted with bald barley and cut when the latter is ripe. Pea ensilage has a higher feeding value than corn ensilage, but should be fed in connection with a grain ration. It is especially good for dairy cattle but also has given excellent results in fattening beef cattle and sheep. When peas are grown for green manure a large-vined sort should be selected. The most favorable time for plow-

ing under is when the lower pods are well filled. It should be remembered that the use of a green-manure crop is profitable only in sections where sufficient soil moisture is present to cause the quick decay of the vegetable matter turned under.

Although peas are pastured in some regions, many farmers are discontinuing the practice because they consider it wasteful, and are harvesting all or a part of their crop and feeding it in a feed lot. The use of alfalfa or sweet-clover pasture in connection with the feeding of field peas noticeably increases the rapidity with which animals gain in weight.

Insects and Diseases.

The pea weevil is the most serious insect enemy of the field pea. Eggs are laid on the young pod and the larva, on hatching, bores into the young pea. The insect may be combated by fumigating the seed before planting or, where it has gained a strong foothold, by discontinuing the growing of peas for several years. Powdery mildew and leaf spot or pea blight are the chief diseases of the field pea. Rotation of crops is the best remedy if the diseases affect a considerable area. Small areas may be sprayed with Bordeaux mixture.

Definite food-saving and food-economy campaigns were conducted in every State, information services were undertaken in cooperation with the daily and weekly press, many women's clubs were organized for the sole purpose of promoting home economics extension work, community kitchens and community drying plants were increased in number and efficiency, many educational exhibits were made, and short and intensive training courses were held in 10 agricultural colleges for the preparation of emergency food agents and local volunteer workers.—Extracted from Annual Report of Secretary of Agriculture.

If every home—there are 20,000,000 of them—should waste on the average one-half cup of milk daily, it would mean a waste of 2,500,000 quarts daily—912,500,000 quarts a year—the total product of more than 400,000 cows.

It is common knowledge that the higher the temperature, the quicker meat will spoil, but the family's supplies are not absolutely at the mercy of the thermometer. Ice and cleanliness are two great weapons of defense.

Low-priced foods can be made to taste just as good as the higher-priced ones when cooked long, and savory vegetables and other flavoring materials added.

MAY REVOKE PERMITS.

Range Users Warned Payments for Waiver of Grazing Privilege Is Sufficient Cause for Revocation.

The Secretary of Agriculture is notifying all holders of permits for grazing live stock on the national forests that the payment of any bonus or allowance for waiver of the grazing privilege in connection with sales of live stock or ranch properties will be cause for revocation of the permit.

To Safeguard Public Interests.

This is in accordance with one of the regulations governing the use of the national forests for grazing privileges, which provides that permits will be granted only for the exclusive use and benefit of the owners of the stock and will be forfeited if sold or transferred in any manner or for any consideration. To protect permittees who may wish to dispose of their property against the losses which sacrifice sales would involve, it has been customary to allow continued use of the national forest ranges by the new owner. Without some provision for this, the Forest Service grazing officials point out, holders of permits who wish to go out of business would not be able to obtain a fair value for their property. But the procedure has aimed throughout at such a safeguarding of the situation as would prevent the acquisition of anything approaching vested rights in the public property by private individuals or companies.

Grazing Privilege Valuable.

Owing to the great and ever-growing demand for use of the forest ranges, which is now in most regions far beyond their capacity, the grazing privilege is of large value. Upon the national forests the Government applies a system of regulated use designed to encourage production, promote the upbuilding of the country along healthy lines, and secure the greatest good to the greatest number, but makes only a moderate charge for the grazing permits.

In the view of those in charge of the national forest grazing business, it would be entirely unfair for the public to forego a maximum return for the value of use of its property, and then allow those granted the privilege of use to collect this value from others, as the price of surrendering their privileges. Such a practice would, they say, make competitive disposal by the Government of the grazing the only logical course.

Cause for Revocation.

As Secretary Houston says in warning the range users that the payment of bonuses or the giving of any consideration to secure the filing of a waiver of the grazing privilege is prohibited, "such a payment would be a consideration for a privilege the granting of which is wholly within the discretion of the Government, and for which no one is entitled to receive compensation." Therefore, any such payment will be "sufficient cause for the revocation of permit or forfeiture of all grazing preferences based upon the purchase of permitted stock."

DRAIN IRRIGATED LANDS.

Good Drainage Conditions Considered Equally Important with Water Supply.

Experience throughout the arid region is demonstrating that the greatest danger to irrigated lands is lack of drainage. Water applied to crops raises the ground water, which brings with it the salts dissolved from the soil; capillarity brings this water to the surface where it evaporates, leaving the salts to accumulate until all vegetation is destroyed. The only insurance against this is proper drainage. The drainage conditions are therefore equally important with the water supply and should be looked into with as much care. When there is not good natural drainage it must be supplied artificially. This, usually, is as expensive as securing the water supply.

While good drainage is the only guaranty against these evils, anything which will check the rise of ground water or lessen evaporation will decrease the danger. The two most effective means of accomplishing these ends are economy in the use of water and thorough cultivation, and cultivation makes possible the greatest economy in the use of water. Wherever possible water should be applied in such a way that the surface soil will not be wet, and cultivation should follow as soon as possible, and be repeated often. This will check evaporation and keep the water in the soil for the use of plants, making it unnecessary to apply more so soon as it would otherwise be needed, and in this way reduce the volume which might go to damaging the land.—Farmers' Bulletin 864, "Practical Information for Beginners in Irrigation."

The special campaigns in the South for the increased production of foodstuffs through the extension forces resulted in a marked increase in the planting of corn, soy beans, velvet beans, cowpeas, peanuts, sweet potatoes, Irish potatoes, and other food crops. The corn crop in the 15 Southern States was 964,504,000 bushels, or more than a fourth of the whole crop of the United States.—Extracted from Annual Report of Secretary of Agriculture.

USE STANDARD POULTRY.

Uniformity of Production, Whether Eggs or Meat, Is Secured Through Maintenance of Well-Bred Flock.

Standard poultry, as the phrase is commonly used in America, is poultry bred to the standards established by the American Poultry Association.

The object of making standards for poultry is the same as the object of making standards of weight, volume, or quality for any product or commodity; that is, to secure uniformity and establish a series of grades as a basis of trading in the article.

In making standards for poultry which apply in the process of production the principal points considered are size, shape, and color.

Breed Characters.

Size and shape are breed characters and largely determine the practical values of poultry. Many standard breeds are divided into varieties differing in color but identical in every other respect.

Color is not a primary utility point, but as a secondary point often comes in for special consideration. For example, a white variety and a black variety of the same breed are actually identical in table quality, but because black birds do not dress for the market as clean and nice looking as white ones, it often happens that they are not as salable.

When a flock of fowls is kept for egg production only, uniformity in color is much less important than approximate uniformity of size and type, yet the more attractive appearance of a flock of birds of the same color justifies selection for color as far as it can be followed without sacrificing any material point.

When a poultry keeper grows his own stock year after year he ought by all means to use stock of a well-established popular standard breed. By doing so and by selecting as breeders only as many of the best specimens of the flock as are needed to produce the chickens reared each year, a poultry keeper maintains in his flock a highly desirable uniformity of excellence in every practical quality and with little extra care and no extra cost can have a pleasing uniformity in color.

Each Breed Has Its Place.

To the novice in poultry keeping it often appears that there is no real necessity for so many breeds and varieties as have been standardized in America. Further acquaintance with them, however, shows that although color differences are in most cases made merely to please the eyes of persons having different preferences for color, the differences in shape and size which make breed character have been developed with a view to adapting each to particular uses or particular conditions.

Leaving out of consideration the breeds kept as novelties, most of which originated before industrial progress created a large demand for poultry products, all the standard American breeds of fowls have been made and developed on the general principle of practical quality, the foundation of breed, character, and value.

Classification of Useful Breeds.

In harmony with this principle the common classification of breeds according to their place in the general scheme of poultry production divides them into three principal classes, namely, laying breeds, meat breeds, and general-purpose breeds—that is, breeds that are not as ready and persistent egg producers as the laying breeds, and not as meaty and as easy to fatten as the meat breeds, yet combine in one individual fowl very good laying capacity with very good table quality.

The Leghorn, Minorca, Andalusian, Ancona, and Campine are well-known breeds of the laying class; the Brahma, Dorking, and Cornish of the meat class; the Plymouth Rock, Wyandotte, Rhode Island Red, and Orpington of the general-purpose class.

Characteristics of Egg Breeds.

The breeds mentioned as of the laying class, with the exception of the Minorca, are relatively small, very energetic and lively, mature early, and are easily kept in good laying condition. The Minorca is of larger size and modified somewhat in the other particulars mentioned, yet has more the character of the laying class than of any other.

Characteristics of Meat Breeds.

In the meat breeds there is not the same uniformity of type that is found in the laying breeds. The three mentioned are all quite different. The Brahma is most popular because it is at the same time the largest and the most rugged in constitution. The Dorking excels in quality of meat but is generally considered somewhat lacking in hardiness. The Cornish is rather hard-meated, but being very short-feathered has its special place as a large meat-producing fowl in southerly sections where the more heavily feathered Brahma does not stand the summers well.

Characteristics of General-Purpose Breeds.

Among the popular breeds of the general-purpose class there are also differences in type, adapting breeds to different uses. The Plymouth Rock is generally regarded as the type meeting the widest range of requirements in the general-purpose class.

The Wyandotte is a little smaller and earlier maturing, but still very well meated and easy to fatten.

The Rhode Island Red has nearly the same standards of weight as the Wyandotte, but is a more active bird, not putting on fat so readily; consequently it approaches the laying type and is popular with those who want eggs and meat, but want eggs most.

The Orpington is at the other extreme in the general-purpose class, being a heavier, meatier fowl than the Plymouth Rock.

A Breed for Everyone and Every Purpose.

Such a list of breeds affords so wide a range of choice that poultry keepers can always select a standard breed better adapted to their locality and their purpose than any nonstandard stock they can procure, and having the further advantage of reproducing true to type.

STORM WARNINGS FOR STOCKMEN.

The Weather Bureau has for many years given warnings to stockmen in certain of the Western States of the approach of conditions injurious to stock, such as cold waves and high winds with heavy snow, cold rains during lambing season, etc. Arrangements have recently been perfected to disseminate these warnings in all the States and portions of States where the stock-raising industry is of sufficient extent and importance to justify special service for its benefit, particularly in the States of North and South Dakota, Wyoming, Montana, Idaho, Nevada, Washington, Oregon, northern California, Utah, Colorado, Arizona, New Mexico, Oklahoma, Texas, Kansas, and Missouri.

The warnings will be issued as far in advance as possible, as a rule on the day preceding the occurrence of the conditions mentioned, and the Weather Bureau section directors of the respective States have arranged for their thorough distribution by means of the telegraph and telephone. Stock raisers not already included in the arrangement should apply to the section directors for this service.

Certain kinds of food—creamed chicken, or custard, or warm vegetables, for example—are excellent culture mediums for bacteria which may have been introduced into them by accident. For this reason it is a safe rule to have as short a time as possible intervene between the preparation of food and its consumption.

Many of the cheaper cuts of meat are nourishing and very appetizing when carefully prepared and cooked for a long time. A fireless cooker is particularly suitable for their preparation.

FUMIGATE GREENHOUSES

Hydrocyanic-Acid Gas Recommended for Ridding Ornamental Plants of Insects, if Used with Care.

By the careful use of hydrocyanic-acid gas, practically all insects infesting the foliage of ornamental plants in greenhouses may be controlled more cheaply and effectively than by any other means, according to a bulletin just issued by the United States Department of Agriculture, "Fumigation of Ornamental Greenhouse Plants with Hydrocyanic-acid Gas," by E. R. Lasscer and A. D. Borden.

It is pointed out, however, that in fumigating a greenhouse containing a large variety of plants, even when using the correct quantity and under just the right conditions, there is risk that the tender growth of some plants may be injured. This injury is not permanent, however, and such plants will show new vigorous growth in a short time. The growth of many plants is stimulated by hydrocyanic-acid gas.

The chemicals required for the fumigation are sodium cyanid containing not less than 51 per cent cyanogen, or potassium cyanid containing not less than 38.4 per cent cyanogen, sulphuric acid 93 per cent pure, and water. Cyanid for fumigation purposes should be practically free from chlorin.

Precautions To Be Taken.

Fumigation should not be attempted in daylight, the department warns, or when the temperature in the house is below 50° F. or above 70° F. Cyanid is one of the most poisonous substances known and extreme care must be used in its handling. The chemicals must not be within reach of those unacquainted with their nature, and must always be plainly labeled. Among other measures of care are the following: Chemicals should be handled preferably with old gloves used for no other purpose; the acid must not touch clothes or skin. The water must not be poured on the acid; put the water in the generator first and then the acid.

The person who places the cyanid in the water and acid must leave the greenhouse immediately, and persons must never enter a fumigated house until it is thoroughly aired. To insure this, some arrangement must be provided by which the ventilators can be opened from the outside. Danger signs must be posted at all entrances, and the house tightly closed before the fumigation begins, and a greenhouse adjoining a dwelling should not be fumigated without previously notifying the residents of the dwelling.

These precautions and others, together with a fumigation table which tells the quantities of chemicals to be used for various insects on a great variety of plants, are given in Farmers' Bulletin 880, which will be sent free on request from the United States Department of Agriculture at Washington. The bulletin is of interest only to those who own or operate greenhouses.

SMYRNA FIGS FOR SOUTH.

Recent Investigations by Specialists Show Superior Imported Type Can Be Produced.

That it may be possible within a year or two to grow perfect Smyrna figs—the superior imported type—in many localities of the South, is the conclusion of United States Department of Agriculture specialists based upon recent investigations. Developments this season, it is said, indicate not only that such an industry can be established, but have shown that an unexpected condition exists: That Smyrna fig trees, some of large size, already are growing in the South. They have not borne fruit because the fertilizing insect, blastophaga, has not been present. The insect was introduced from California in one section this year and apparently has established itself.

Fertilizing Insects All That's Necessary.

Ever since the successful establishment of the capri fig fertilizing insect in California and the production of considerable quantities of Smyrna figs on the west coast, it has been the hope of many people in the South and of the Department of Agriculture to establish a similar industry in the Gulf States. As many people in the South know, there are in a number of towns and villages large fig trees which are sterile. Recent investigations by G. P. Rixford, of the Federal Bureau of Plant Industry, and George E. Murrell, horticulturist of the Southern Railway, have shown that many of these sterile trees are, in reality, Smyrna trees which have not borne fruit owing to the absence of the particular insect necessary to fertilize the flowers. Both male—called capri trees—and female Smyrna fig trees, are present.

With the cooperation of Mrs. L. M. Russell, a grower at Brunswick, Ga., a number of the fertilizing insects were introduced from California last summer and apparently have become established on two large trees in that city. It is believed that they will survive the coming winter, in which case the necessary step to the production of Symrna figs, in at least one locality in the South, will have been taken. Once production has been demonstrated, it is believed the new field will be developed by plantings in many localities.

TO CONTROL GOPHER.

Experiments Demonstrate that Pocket Gopher Can Be Successfully and Economically Controlled.

The pocket gopher, which in several localities in Idaho causes considerable loss in crops, especially such hay crops as alfalfa, can be controlled effectively and economically. A great part of this loss results from the gopher's interfering with irrigation. The numerous burrows which it makes in a field render it difficult to turn water properly from irrigation ditches, because they offer ready access to the water, and in this way carry it in undesired directions, in many cases to the subsoil, where it is lost by drainage. The pocket gopher also destroys many of the plant roots, and its dirt mounds make the harvesting of the crop difficult.

The use of the several makes of traps commonly on the market is effective in keeping small areas free of pocket gophers. For ridding alfalfa fields, orchards, pasture lands, and long stretches of ditch embankments of the pest, poisoning is a very successful, much more practical, and less expensive method. Baits of sweet potato, carrots, or parsnips may be placed in their underground runways.

To Make Poisoned Bait.

The poisoned bait is prepared as follows: Cut 4 quarts of sweet potatoes, carrots, or parsnips into cubes about one-half inch square and 1 inch long; moisten with water and drain. Sift a mixture of one-eighth ounce of powdered strychnin alkaloid with one-tenth ounce of saccharin over the bait and stir well to distribute the poison evenly. In mixing a smaller quantity of bait, use one twenty-fourth ounce of powdered strychnin alkaloid with one-thirtieth ounce of saccharin for about three-fourths quart of the cubes.

To Spread Bait.

The runways, which are usually 4 to 8 inches beneath the surface, can be located by means of a probe made of any strong handle about an inch in diameter and 36 inches long. One end should be bluntly pointed. Into the other end should be fitted a piece of three-eighths-inch iron rod, protruding about 12 inches, and bluntly pointed. A foot rest aids in probing in hard ground. By forcing this iron rod down near gopher workings, or a foot or two back of fresh mounds, the open tunnel can be felt as the point breaks into it. The blunt end of the instrument is now used carefully to enlarge the hole, about two baits are dropped into the run, and the probe hole closed with grass, leaves, or other coarse material.

Baits need be placed at only two points in each separate system of 10 to 30 mounds, as this is usually the home of a single gopher. Experience has demonstrated that baits placed fairly in the open runs have almost invariably killed the animals. The method has found great favor wherever introduced.

Seventeen Cents an Acre.

In order to ascertain the possibility of exterminating the pocket gopher from infested fields in Idaho by poisoning and to get an estimate of the cost, an experiment was undertaken on an area of 48.18 acres on the Fort Hall Indian Reservation, and accurate data on all the work were kept. Fields were gone over thoroughly until practically the entire pocket gopher population was exterminated from the area. The cost of the poisoning materials, estimated at the present retail prices, amounted to 1½ cents an acre, and the labor, at 30 cents an hour, to 15.4 cents an acre.

From this and other experiments in Idaho it is evident that the pocket gopher can be successfully controlled by poisoning if thorough and systematic work is done.

To remedy a shortage of containers in the South at the beginning of the canning season, the department, in cooperation with the Council of National Defense, railroads, and manufacturers, arranged for the shipment of more than 10,000,000 tin cans in carload lots from certain factories direct to counties where they were needed. The cans were sold at cost plus freight and handling charges, thereby enabling a saving estimated at more than $250,000.—Extracted from Annual Report of the Secretary of Agriculture.

There is no section of the country which can produce cattle more cheaply than the South, for the lands are still cheap, the grazing is good, the pasture season is long, feed can be produced at a minimum cost, and inexpensive shelter only is required for the animals during the winter months.

Egg yolks, which are rich in fat and which are often left over from cake making, may be used to enrich soups or may be combined with milk to make custards which resemble cream in composition and can be used as cream, as on desserts.

Germs which grow in food and cause illness grow very rapidly, particularly if the food is a little warm, and are not destroyed unless the food is well cooked before serving. Simply "warming up" is not enough.

If you can get them, purchase well-matured pullets rather than hens.

MUSKRAT FARMING PAYS.

Reclamation of Marsh and Swamp Lands Destroys Natural Habitat. Private Preserves Profitable.

If the supply of muskrat fur is to be maintained when many of the swamp and marsh lands now occupied by the animals are reclaimed for agricultural purposes, "muskrat farming" will have to become more general. This is brought out by biologists of the United States Department of Agriculture in a recent Farmers' Bulletin, "The Muskrat as a Fur Bearer."

For the present, however, a sufficient number of muskrats to meet demands for their fur are trapped from marshes and swamps that are, for the most part, unprotected, millions of skins being taken each year. So long as the natural breeding places remain undisturbed and reasonable closed seasons are maintained, the biologists say, there is little likelihood of the numbers of the animals being depleted. This is because these animals multiply much more rapidly than most other fur bearers. With adequate protection in the breeding season and with the present habitat available, from ten to twelve million pelts can be taken in North America annually without depletion of the supply.

The muskrat is found throughout a wide area in North America, the habitat extending from the northern limit of trees to near the Mexican border.

Muskrat Farming.

The practicability of muskrat farming already has been demonstrated. The animals are easily kept, become very tame, and breed well in narrow quarters. Under present economic conditions, however, keeping muskrats on preserves is more practicable than keeping them in restricted quarters. The former plan is in remunerative operation in the Chesapeake Bay region. In Dorchester County, Md., marsh land formerly considered almost useless, and now used as muskrat preserves, is worth more, measured by actual income, than cultivated lands in the same vicinity. The owner of one 1,300-acre tract of marsh took in two seasons—1909 and 1910—more than 12,000 pelts which sold for more than $9,000.

The Industry Adapted to Farmers.

The biologists point out that the maintaining of muskrat preserves should be an attractive business where conditions are favorable. The animals require no feeding, since the plant life of ponds and marshes furnishes abundance of food. It may even be possible to "plant" the industry in sections from which muskrats are now absent. As trapping is done in winter, it is pointed out, the business of muskrat farming is especially adapted to farmers and farmers' boys.

NEW WHEAT DISEASE.

Destructive Malady Is Spread Through Seed—Screening Out Shriveled Grain Recommended.

Study of the new bacterial disease of wheat which has been discovered in many States of the Middle West has progressed to the point where it is now certain that the disease may be transmitted on the seed, according to a report of progress recently issued by the United States Department of Agriculture, whose specialists are working on the problem in cooperation with the experiment stations of Kansas and Wisconsin. It is of the utmost importance, the Federal specialists say, to know speedily the extent to which this disease has gained a foothold in the United States and to restrict its spread in every possible way. Wheat kernels that are plump do not contain bacterial cavities, but shriveled ones often do. Consequently it is observed that screening out the shriveled grains before planting will remove one cause of spreading the disease, and farmers are urged during the planting season this spring to take this precaution.

Prevalent in Kansas.

The disease has been discovered in many States from Texas to Minnesota and Montana, but is most prevalent *in Kansas*. In favorable years it is capable of doing immense damage once it is generally disseminated. How long it has been in the country and when and where introduced is not known. It is a disease well adapted to general dissemination because the organism after attacking leaves, stems, and heads of wheat finally lodges on and in the kernels, by way of which it is carried over to the crop of the following season. The kernels of badly attacked heads are shriveled and are very likely to carry the organisms either on their surface or in the interior. Bacterial cavities in the interior of such wheat grains are very common.

The more conspicuous signs of the disease are brown stripes on leaves, or many whole leaves dead in advance of maturity; black stripes on stems, especially the upper parts, and often on all sides so that the stem is nearly girdled in advance of the ripening of the grain; a dark stain on the joints of the spike and parallel black lines or stripes on the chaff; the beards of the wheat are also often black in whole or in part. Frequently there is a yellow bacterial ooze from leaves, stems, and heads, in the latter case both to the surface and inward over the grains.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., FEBRUARY 6, 1918. No. 27

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing and Preparation the Next Few Weeks

NORTH AND WEST.

The Office of Extension Work in the North and West, United States Department of Agriculture, urges that the matter discussed below have immediate attention.

February should be a month of planning and preparation. Everything that can be done now should be done in order to avoid delays in the rush season. Tools that have rusted should be scoured; loose bolts should be tightened and weak ones replaced; repairs for plows, mowers, and binders should be ordered; plows sharpened; harnesses washed, repaired, and oiled; and wagons and implements painted. Arrangements should be made for seed corn and for seed potatoes, lime, spray, and seed-treatment materials. Lumber and materials for fences, hog and poultry houses, and tile drains should be hauled now. Plan and put in labor-saving devices about the house and barns. Don't be surprised when your blacksmith, druggist, implement dealer, lumber dealer, or seed house is compelled to disappoint you if you wait till the last moment before taking your work in or ordering the things you need.

Pruning and Spraying.

Pruning of apple and pear trees can be done better now than later. More time can be given now; it is easier to see what branches and twigs should be removed, and there is no grass or weeds to interfere with collecting and piling the trimmings. The war has made spraying materials high priced and hard to get; so don't expect your druggist or local seed dealer to keep a large supply on hand, and remember that it may take him some time to get them and that he may not be able to get them if you wait too long. Put in your order early. Don't neglect to get ready to spray or fail to do it because materials are high priced, as it may take several years to overcome the damage done by neglect.

Gardens.

Plans should be made now for the family garden. The plots used last year should be

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MARKETING.

The following timely recommendations are made by the Bureau of Markets, United States Department of Agriculture:

Growers of perishables and shippers of eggs should place orders at once for their minimum requirements the coming season, in order that manufacturers may lay plans to take care of them. Grain growers who use sacks also will find it best to place their orders.

Soft-Corn Problems.

A great deal of soft corn will be marketed in the next few months, and especial care in removing all cob-rotted ears when the corn comes out of the cribs and before it is shipped will insure better grading at terminal markets and hence better prices to farmers.

Small country elevators can help in marketing soft corn by running it through the screens and fans several times, in that way removing some of the excess moisture before reshipping it to markets equipped with artificial driers.

Loading Freight Cars.

Investigations of methods of packing products in freight cars have shown that great savings can be effected during the shipping season by proper stacking of containers, bracing, and allowing for ventilation. Losses on cars at terminals from these causes are common, as appears from many photographs of freight-car interiors taken at time of arrival on markets.

Individuals and shipping associations can well afford to study the question of proper loading of freight cars before making shipments of vegetables, fruit, and other products.

Put Up Natural Ice.

Everyone who can put up natural ice in unused buildings will help conserve food supplies next summer. Ice is very necessary in handling milk and other perishable farm products and a limited supply throughout the country would have a serious effect on the health of the population. Many

(*Continued on page 3.*)

IN THE SOUTH.

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

This is not only the most important but the most critical year in the history of agriculture in the Southern States. It is necessary that the plan adopted should meet the approval of all patriotic men and women, that it should sustain our agriculture, sustain our people, and sustain our Nation. It must be *a possible, a practical, and a patriotic* program.

South Almost National Asset as to Food.

During the year 1917 the farmers of the South did a wonderful piece of work. In the face of an increasing price for cotton they responded to the call of the President of the United States and increased their production of food and feed crops and also their production of live stock. In some of the States the increase in corn production ran more than 50 per cent and the increase in the 15 Southern States was 13 per cent in spite of the great decrease in Texas, Oklahoma, and Louisiana, due to excessive drought. The increases in velvet beans, peanuts, soy beans, hay, forage crops, gardens, sugar, sirup, etc., have been phenomenal, but not more than our people needed. For the first year in recent history of the South the Bureau of Markets has been able to report that the local demands for corn have been met by the local supply in many sections. The South has been almost a national asset and not a liability as to food. Another year let us have no liabilities. We must prove our worth.

Needs of Nation Demand Safe Farming Program.

Under the present circumstances the *needs of the Nation are best met* by pursuing a safe farming program, improving each year on what we have done heretofore. By doing so we place the least possible burden upon the transportation facilities of the country, we keep our cotton as a real cash crop, and we support our people and our growing livestock industry by producing high-priced

food and feed products and marketing them to ourselves at the cost of production. A taste of prosperity during the past year, due to a better-balanced husbaudry as well as high prices, should encourage us to contiuue the great safe farming program of food, feed, aud cotton.

Let us go over the items of a safe farming program, elaboratiug them in the light of present conditions:

A Home Garden for Every Family on the Farm.

(1) Also a back-yard garden for every town family. Feed the people with fresh vegetables from an all-season garden as many days in the year as possible. Grow the home supplies of sweet potatoes and Irish potatoes. Contiuue the sorghum and sugar cane for the sirup supply.

Beware, however, of going into the production of perishable products on an extensive scale without knowing that there is a market for them, a system of marketing already established, and transportation facilities to get them to the market. This applies to the undeveloped trucking areas. All well-established trucking areas where farmers have had experience in the business will continue their operations with cautious regard to the needs of their established markets.

Must Sustain the Production of Corn.

(2) There is grave danger this year of a reduced production of corn. This would be unwise. Many States in the South have gone into live stock quite extensively. It would be a disaster for us to have live stock without the corn to feed it next year. If you have gone into the live-stock industry remember that you must maintain the corn production. It is your only defense. There is no profit in live stock unless the farmer produces his own feed.

(3) The small grains as supplement to the corn and for food and feed were taken care of by your fall plans.

Hay and Forage Crops Necessary.

(4) Produce the hay and forage crops necessary to supply amply the live stock on the farm for one year, with an excess for sake of safety, and for city and town consumption. This is necessary for the same reasons mentioned under corn productiou. Velvet beans, soy beans, peanuts, cowpeas, and other forage crops should by all means be maintained and increased this year. Remember especially the value of these crops as actual cash crops of the farm. Peanuts and soy beans furnish the oil much needed in these war times. The Nation's need, your own food needs, and the need for feed for your growing live-stock industry makes this imperative. Use these other supplemental cash crops, especially in boll-weevil territory.

Produce Meat, Eggs, and Milk for Family.

(5) *Produce the necessary meat, eggs, and milk for the family* and an excess to supply the cities and towns. An increased production of poultry and hogs can and is being brought about rapidly. The Nation needs pork, and the South is establishing markets and the cooperative shipping of hogs to meet this need. *Increase this product this year.* The milk cows for every family ought to be maintained because of the great value of milk as human food; all of it can be utilized. Pasturage and uncultivated land can be used for producing beef cattle, which will consume also the excess or otherwise waste forage and feed products of the farm. All of these plans fit in with the national needs.

Grow Cotton as Cash Crop.

(6) When the living has been amply provided for, grow as much cotton as you can handle, but keep your cotton as a cash crop. The country needs cotton as well as food and feed. Neither should be sacrificed for the other.

(7) Plan to save all possible waste products of the farm. Prevent all waste in the planting and harvesting. Sell the excess products of the farm and pay living expenses. Have a surplus of hogs, eggs, poultry, soy beans, peanuts, coru, or such other farm products as are adapted to your locality for sale besides cotton. Keep the credit needs for living expenses down to the minimum and invest your savings in these times of good prices in Liberty bonds and other Government securities, so that you may become financially independent.

(8) This is the time for everybody to use the best labor-saving modern farm implements in order that each man and each team may do the largest possible amount of work in a day. During the past year the farmers of the South have carried (on an average) a larger acreage than ever before. This has been possible for two reasons: First, under diversification each laborer is able to handle a larger acreage; second, the patriotic call has prompted men to work harder. The same two reasons, coupled with the use of modern implements, will again produce large and profitable crops on southern farms.

Follow Safe and Well-balanced Husbandry.

High prices of any one farm product in this plan should not tempt farmers, merchants, or bankers to depart in practice or in credit influence from a safe and well-balanced husbandry. Food for ourselves and feed for our live stock; food and clothing for the Army and Navy of the United States and of her associates in the European war, with the products of the South going out to the Nation and to the world, and the minimum of imports of food to support the South, make a safe, profitable, and patriotic program.

The agricultural colleges of the Southern States, in cooperation with the United States Department of Agriculture, have county agents in the vast majority of all agricultural counties in every State. Campaigns to sustain the production of food and feed will be conducted in the South during the early months of the year. These agents are part of the war work of the country. They will be much help to farmers and acquaint them with the full agricultural needs of the Nation in time of war.

The strength of a uatiou is measured by the strength of its weakest part. Let us keep the South strong for the sake of the Nation in its hour of great need by making her self-sustaining and self-reliant, an agricultural asset able to honor drafts for food and clothing for the Nation. It is a patriotic service.

ROAD BUILDING DURING WAR.

Secretary Houston Announces Policy of Department on Highway Construction.

Secretary Houstou, ef the Department of Agriculture, in a commuuication to the American Association of State Highway Officials, has set forth squarely the policy which he thinks should be followed in highway construction during the war. Secretary Houston says:

"So far as it is practicable to do so, this department will urge the maintenance of the highways already constructed; the construction and completion of those highways which are vitally important because of their bearing upou the war situation or for the movement of commodities; the postponement of all highway construction relatively less essential or not based upon important military or economic needs. The department is preparing to suggest to the State highway departments the preparation of a schedule of work for the Federal-aid projects for 1918 in line with this policy."

In carrying out the policy thus aunounced there has been sent out by the Office of Public Roads, of the Department of Agriculture, schedule forms on which the States are requested to set forth their proposed Federal-aid work for the 1918 working season. These schedules call for a description of each road; the character, quantity, and rail haul of the materials to be used; the probable cost; the amount of Federal funds desired; the specific purpose of the improvement; its bearing upon the war situation; and what effect a delay of the work until 1919 or later would have. With the information thus assembled and classified, an efficient road-construction program is assured. While it is impossible to make any definite statement regarding the transpor-

tation of road materials, the expectations are that the transportation situation will be improved and that the shipment of such materials for essential projects can be made.

Road construction and maintenance in the United States involve an annual expenditure of some $300,000,000, and there is scarcely a section of the country that is not seriously affected by a marked disturbance in road work.

NORTH AND WEST.

(*Continued from page 1.*)

cleaned up as soon as spring opens, or new plots selected. Seeds should be selected and ordered at an early date. A seed box or cold frame started now will provide plants for setting out in the early garden. Now is the time to organize neighborhood garden clubs and appoint committees to arrange for manure or fertilizer, to determine what vegetables the members desire to grow, and to order seed. Where the garden is small, it is advisable to plan it primarily for staple crops—potatoes, lima beans, snap beans, sweet corn, tomatoes, onions. Lettuce, radishes, beets, turnips, and similar crops can be grown between the rows of the staple crops. The boys and girls should be encouraged to plan and cultivate gardens. Last year 12,000 girls and boys in one western State grew and canned $336,000 worth of vegetables and fruits.

Save and Produce Pork.

An adequate supply of pork must be available for the use of our soldiers and the soldiers of the allies. The farmers of the United States must not only produce more pork, but they must help save it, so that the immediate demand can be supplied. A ham or strip of bacon less used on the farm helps as much as one saved in the city. Extra care in curing meat will prevent loss, and a larger surplus can be sold. Good shelter and ample and judicious feeding during next month will mean more pork for the boys in the trenches this spring. Why not sell one of the hogs that has been fattened for killing and put the money received into a chicken house and thus enable the housewife to raise more chickens for your summer meat?

Preparation should be made now to save every pig possible in March farrows. See that the sows are warmly housed and protected from injury, and that brood pens are provided with guard rails to prevent the pigs being lain upon. Care should be taken to avoid overfeeding at farrowing time. Only water should be given during the first 24 hours after the pigs arrive, unless the sow appears hungry, in which case a thin slop of bran or middlings may be fed. The young pigs should have room to exercise and should be made to exercise; otherwise thumps may be developed, if the sow is a heavy milker. The weak and undersized pigs in a litter should be given special attention. If given a chance, your own boy or girl or some boy or girl in the neighboring town will work wonders with a runt or orphan. If you have more brood sows than you can take care of properly, find out if there is not a neighbor or some one in the neighboring town who would be glad to buy or take one or more sows on shares.

Early spring grazing crops should be planned. Canada field peas and oats are good; rape is one of the best, especially on fertile soil.

Dairying.

Warmth and plenty of feed are of the utmost importance at this season in handling dairy cows. Cows should be kept in the barn or a shed on stormy days, or be sheltered from the wind, and not turned out to shiver in the cold and wind. Water should be warmed; otherwise the cows will drink but little and the milk production will fall off. No farmer would think to-day of burning corn or grain to heat his home, yet many are using corn and grain in the form of animal heat to warm the water cows drink. Especially in sections where it is getting short, feed should be used carefully. Cows should not be allowed to run down in flesh, as it will reduce their ability to produce milk and their power to resist disease. The young calf should be given warm milk. It will make him healthier and stronger.

Cows bred in January, February, or March generally produce a greater flow of milk and more butter fat than cows which freshen in the spring. It will pay to find the best sire in the neighborhood and breed now.

Plenty of ice should be put up where possible. It will mean easier work for the housewife and more and better butter next summer. An icehouse can be cheaply and quickly constructed and filled, and often will pay for itself in a single season.

Care should be taken during cold spells to see that barns and places where milk and cream are kept are well ventilated; otherwise odors and tastes may be expected in the milk and butter.

URGED TO GROW FOOD CROPS.

Secretary McAdoo Appeals to Southern Farmers to Raise Enough Food for Their Section.

Secretary of the Treasury McAdoo, on January 19, authorized the following statement:

One of the great tasks confronting the American people is that of improving and making thoroughly efficient their railroad transportation system. The people of the South, and especially the farmers, are in the habit of using the transportation system of the country to a degree that is highly uneconomic and unnecessary, for the purpose of transporting food and feed from other parts of the United States, because they do not produce enough foodstuffs and feedstuffs for themselves.

Appeal to Farmers.

I wish to urge upon the people of the South, and especially the farmers, to do everything possible during the next year to relieve the strain on the railroad agencies of the Nation by producing their own food and feed crops. The South can, if it will, feed itself and produce the rations both in roughage and grain for its own live stock.

The best farmers of the South recognize the fact that it pays as a matter of good farming to produce on each farm the hay and grain for the live stock, all the garden products, fruit, and poultry products which are needed by the farm, and if possible a surplus of all these for sale in the immediate vicinity.

Doesn't Discourage Growing of Cotton.

It is not desired nor do I suggest that the growing of cotton should be discouraged. Every Southern farmer should raise all the cotton that he can well cultivate, since cotton constitutes the best cash crop of most of the South, but he should grow the hay and grain to feed his draft animals. He should produce his own milk, butter, eggs, poultry, fruit, and vegetables, and every city and town of the South should be, to the largest possible extent, supplied with these commodities by the farmers of the South. It is not only good agricultural practice, but it becomes in this exigency a patriotic duty.

If the South can feed itself it will release from unnecessary service in the South a vast number of freight cars and engines and will help win the war.

MARKETING.

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farmers and townsfolks can put up ice during the present winter, being assured that it will be needed in the period of hot weather. Information about harvesting or storing ice may be found in Farmers' Bulletin 623, "Ice Houses and Use of Ice on the Dairy Farm."

Potatoes.

Despite the unusually large crops of both white and sweet potatoes last year, only a small part of them have been marketed up to February 1, and growers and dealers may find themselves in difficulties unless steps are taken to market these crops gradually during the next two months.

BUYING POULTRY FEED.

How Judicious Buying May Reduce Costs—Relative Feeding Values of Common Grains.

The old saying, "No loss without some gain," applies to the poultry feed situation. High prices of feeds have made poultry keepers consider values of feeds as never before, and they are rapidly learning how to buy more economically.

While farmers have, as a rule, fed their poultry the grain that was cheapest on the farm, many poultry specialists and most small poultry keepers have been accustomed to use their favorite poultry feeds without considering either the quality of the supply or the possibility of using cheaper substitutes. This attitude of the buyers of poultry feeds has made it easy for feed dealers to sell low-grade and damaged grain at much higher prices than could have been obtained if poultry keepers everywhere were studying and practicing economy in buying feeds. When buyers of poultry feeds buy with reference to quality and price as compared with the cheapest grain on the market, the price of that grain will control the prices of all other grains for poultry feed.

Corresponding Prices of Grains.

Under normal conditions, corn is in nearly all parts of the United States the cheapest poultry feed. At the present time oats are nearly everywhere cheaper than corn, and in some parts of the country barley is cheaper than oats. When corn goes down to $1.50 a bushel, oats should be 75 cents and barley $1.20 a bushel to give the same value for the money, when fed to poultry.

The relative commercial feeding values of the grains are most readily computed by using the prices per hundred pounds, taking corn as the standard and determining the relative value of any other grain by a rough comparison of its feeding value with that of corn. It is not practicable to make accurate calculations for this purpose, but a calculation which assumes that, except for indigestible matter and deterioration, the common grains are, pound for pound, of the same feeding value, and rates them accordingly will meet the requirements of the case.

Judging Quality of Feed.

The common characters and conditions of grains which roughly determine their values as poultry feeds are easily estimated by the eye or by weight or bulk in measures or containers of known capacity.

Good cracked corn is hard, bright, clean, and free from soft and chaffy particles. Corn that is crushed (not cracked), and shows much soft, chaffy, and scaly matter, should be rated proportionately below good cracked corn in feeding value. Cracked corn in which any considerable amount of greenish discoloration appears should be rejected as unfit for poultry.

Oats and barley with the hulls on are at once seen to contain more indigestible matter than corn and wheat. Again, the indigestible hulls covering oats and barley make those grains less palatable to poultry, and their feeding value must be discounted for that. An average sample of oats should be valued about 12 to 15 per cent less than a good sample of cracked corn; an average sample of barley from 3 to 5 per cent less than good cracked corn.

Oats weighing less than the United States standard of 32 pounds to the bushel and barley under the United States standard of 48 pounds to the bushel should be discounted in price according to the shortage in weight, while for weights above the standards the usual discount in price may be reduced. Oats and barley that are much below standard weight usually contain a large proportion of grains that are nearly all hull. These, poultry will not eat unless starved into it.

Value of Poor Wheat.

Wheat of good milling quality is not sold for poultry feed except in sections that grow much wheat and little corn, and occasionally from small local supplies. The best wheat usually available for poultry is not actually worth more as a poultry feed than good cracked corn, but a poultry keeper can sometimes afford to pay a little more for it because it can be kept longer without deterioration, and under some conditions it is fed with less waste.

Wheat that has been perceptibly damaged by fire, water, or frost has less value as poultry feed than good cracked corn. There is no advantage or economy in buying damaged wheat for poultry except at its actual value in comparison with the corn, oats, and barley available.

The True Basis of Prices.

Low-grade and damaged grains are suitable for poultry feed if birds in good condition will eat them readily. They can be fed profitably if they have been bought at prices representing their actual values for poultry feeding, as compared with that of other available feeds. Better buying by poultry keepers will not immediately stop the selling of poor feeds at high prices, but eventually it will establish prices for them on the basis of the price of the cheapest feed on the market, and not, as now, at a small reduction from the prices of good grades of the same grains.

Everything wasted means that some one has to work just that much more for you.

SWEET-POTATO DISEASES

Controlled by Selection and Treatment of Seed, Careful Preparation of Hotbed, and Crop Rotation.

Sweet-potato diseases may be controlled, according to the advice of the pathologists of the United States Department of Agriculture, by giving attention to the careful selection and treatment of the seed potatoes, to care in the preparation of the hotbed, and to crop rotation.

Disinfect Seed Potatoes.

Before the potatoes are bedded they should be carefully picked over and any showing rotted end, black-rot spots, or wounds over the surface should be thrown out. After the seed potatoes have been selected they should be disinfected for 5 to 10 minutes in a solution of mercuric chlorid, made by dissolving 1 ounce of the crystals in 8 gallons of water. If mercuric chlorid is not available, or for some reason it is objectionable, the potatoes may be disinfected by immersing for five minutes in a formaldehyde solution (40 per cent), 1 pint to 240 pints of water. It is preferable that this work be done on a warm day so as to prevent chilling the potatoes as much as possible. The potatoes should be put in the bed as soon as they have been disinfected. They may be slightly injured by either of these treatments, with slight reduction in germination, but the advantages to be gained in disease prevention offset these slight losses.

New Soil for the Hotbed.

A new hotbed should be made each year. The old soil should be carted away and new soil or sand secured from the woods or from some field where sweet potatoes have never been grown. All rubbish about the bed that might contain disease germs should be raked up and burned or carted away. If manure is used in the bed as a source of heat, care must be taken to see that diseased or rotted sweet potatoes have not been thrown upon it or that it has not been subjected to infestation by germs from other sources.

Rotate the sweet-potato crop. If possible, plant the healthy plants on ground where sweet potatoes have not been grown for at least three years.

Small biscuits or rolls can stand a much hotter and quicker baking than large loaves which must be heated slowly and long. On being taken from the oven bread should be placed on slats or shelves so that the air can circulate about it until it is thoroughly cooled.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., FEBRUARY 13, 1918. No. 28

PRESIDENT TELLS AMERICAN FARMERS WAR'S CULMINATING CRISIS HAS COME—ACHIEVEMENTS THIS YEAR MUST DETERMINE ISSUE.

President Wilson, prevented by a cold and by adverse weather conditions and disturbed traffic from attending a conference of farmers at the University of Illinois, Urbana, sent to the assembly a message which told the farmers "that the culminating crisis of the struggle has come and that the achievements of this year on the one side or the other must determine the issue." He also expressed confidence that the farmers of the Nation not only will repeat but will exceed their efforts of last year in order that this country and the nations with which we are associated in the war may have a sufficient supply of food.

The President delegated Secretary Houston to represent him at the conference and to convey the message to it. Secretary Houston, however, found that heavy snowstorms raging between Washington and Ohio would prevent him from reaching Urbana in time for the meeting. After conferring with the President, Secretary Houston sent the President's message in full by telegraph to President E. J. James, of the University of Illinois, with the request that he deliver it to the farmers. The message was accompanied by a telegram from Secretary Houston expressing regret that it was impossible for him to be present, and conveying to the farmers his own appreciation of their service to the Nation.

The President's message to the farmers follows:

"I am very sorry indeed that I can not be present in person at the Urbana conference. I should like to enjoy the benefit of the inspiration and exchange of counsel which I know I should obtain, but in the circumstances it has seemed impossible for me to be present and, therefore, I can only send you a very earnest message expressing my interest and the thoughts which such a conference must bring prominently into every mind.

"I need not tell you, for I am sure you realize as keenly as I do, that we are as a nation in the presence of a great task which demands supreme sacrifice and endeavor of every one of us. We can give everything that is needed with the greater willingness and even satisfaction, because the object of the war in which we are engaged is the greatest that free men have ever undertaken. It is to prevent the life of the world from being determined and the fortunes of men everywhere affected by small groups of military masters who seek their own interest and the selfish dominion throughout the world of the governments they unhappily for the moment control. You will not need to be convinced that it was necessary for us as a free people to take part in this war. It had raised its evil hand against us. The rulers of Germany had sought to exercise their power in such a way as to shut off our economic life so far as our intercourse with Europe was concerned, and to confine our people within the Western Hemisphere while they accomplished purposes which would have permanently impaired and impeded every process of our national life and have put the fortunes of America at the mercy of the Imperial Government of Germany. This was no threat. It had become a reality. Their hand of violence had been laid upon our own people and our own property in flagrant violation not only of justice but of the well-recognized and long-standing covenants of international law and treaty. We are fighting, therefore, as truly for the liberty and self-government of the United States as if the war of our own revolution had to be fought over again; and every man in every business in the United States must know by this time that his whole future fortune lies in the balance. Our national life and our whole economic development will pass under the sinister influences of foreign control if we do not win. We must win, therefore, and we shall win. I need not ask you to pledge your lives and fortunes with those of the rest of the Nation to the accomplishment of that great end.

"You will realize, as I think statesmen on both sides of the water realize, that the culminating crisis of the struggle has come and that the achievements of this year on the one side or the other must determine the issue. It has turned out that the forces that fight for freedom, the freedom of men, all over the world as well as our own, depend upon us in an extraordinary and unexpected degree for sustenance, for the supply of the materials by which men are to live and to fight, and it will be our glory when the war is over that we have supplied those materials and supplied them abundantly, and it will be all the more glory because in supplying them we have made our supreme effort and sacrifice.

"In the field of agriculture we have agencies and instrumentalities, fortunately, such as no other government in the world can show. The Department of Agriculture is undoubtedly the greatest practical and scientific agricultural organization in the world. Its total annual budget of

"I dare say that you are aware that the farmers of this country are as efficient as any other farmers in the world. They do not produce more per acre than the farmers in Europe. It is not necessary that they should do so. It would perhaps be bad economy for them to attempt it. But they do produce by two to three or four times more per man, per unit of labor and capital, than the farmers of any European country. They are more alert and use more labor-saving devices than any other farmers in the world. And their response to the demands of the present emergency has been in every way remarkable."—President Wilson.

"I will not appeal to you to continue and renew and increase your efforts. I do not believe that it is necessary to do so. I believe that you will do it without any word or appeal from me, because you understand as well as I do the needs and opportunities of this great hour when the fortunes of mankind everywhere seem about to be determined and when America has the greatest opportunity she has ever had to make good her own freedom and in making it good to lend a helping hand to men struggling for their freedom everywhere."—President Wilson.

"But I ought to say to you that it is not only necessary that these achievements should be repeated, but that they should be exceeded. I know what this advice involves. It involves not only labor but sacrifice, the painstaking application of every bit of scientific knowledge and every tested practice that is available. It means the utmost economy, even to the point where the pinch comes. It means the kind of concentration and self-sacrifice which is involved in the field of battle itself, where the object always looms greater than the individual."—President Wilson.

"But the attention of the War Department has been very seriously centered upon the task of interfering with the labor of the farms as little as possible, and under the new draft regulations I believe that the farmers of the country will find that their supply of labor is very much less seriously drawn upon than it was under the first and initial draft, made before we had had our present full experience in these perplexing matters. The supply of labor in all industries is a matter we must look to and are looking to with diligent care." —President Wilson.

$46,000,000 has been increased during the last four years more than 72 per cent. It has a staff of 18,000, including a large number of highly trained experts, and alongside of it stand the unique land-grant colleges, which are without example elsewhere, and the 69 State and Federal experiment stations. These colleges and experiment stations have a total endowment of plant and equipment of $172,000,000 and an income of more than $35,000,000, with 10,271 teachers, a resident student body of 125,000, and a vast additional number receiving instruction at their homes. County agents, joint officers of the Department of Agriculture and of the colleges, are everywhere cooperating with the farmers and assisting them. The number of extension workers under the Smith-Lever Act and under the recent emergency legislation has grown to 5,500 men and women working regularly in the various communities and taking to the farmer the latest scientific and practical information. Alongside these great public agencies stand the very effective voluntary organizations among the farmers themselves, which are more and more learning the best methods of cooperation and the best methods of putting to practical use the assistance derived from governmental sources. The banking legislation of the last two or three years has given the farmers access to the great lendable capital of the country, and it has become the duty both of the men in charge of the Federal-reserve banking system and of the farm-loan banking system to see to it that the farmers obtain the credit, both short term and long term, to which they are entitled not only, but which it is imperatively necessary should be extended to them if the present tasks of the country are to be adequately performed. Both by direct purchase of nitrates and by the establishment of plants to produce nitrates, the Government is doing its utmost to assist in the problem of fertilization. The Department of Agriculture and other agencies are actively assisting the farmers to locate, safeguard, and secure at cost an adequate supply of sound seed. The department has $2,500,000 available for this purpose now and has asked the Congress for $6,000,000 more.

"The labor problem is one of great difficulty, and some of the best agencies of the Nation are addressing themselves to the task of solving it, so far as it is possible to solve it. Farmers have not been exempted from the draft. I know that they would not wish to be. I take it for granted they would not wish to be put in a class by themselves in this respect. But the attention of the War Department has been very seriously centered upon the task of interfering with the labor of the farms as little as possible, and under the new draft regulations I believe that the farmers of the country will find that their supply of labor is very much less seriously drawn upon than it was under the first and initial draft, made before we had had our present full experience in these perplexing matters. The supply of labor in all industries is a matter we must look to and are looking to with diligent care.

"And let me say that the stimulation of the agencies I have enumerated has been responded to by the farmers in splendid fashion. I dare say that you are aware that the farmers of this country are as efficient as any other farmers in the world. They do not produce more per acre than the farmers in Europe. It is not necessary that they should do so. It would perhaps be bad economy for them to attempt it. But they do produce by two to three or four times more per man, per unit of labor and capital, than the farmers of any European country. They are more alert and use more labor-saving devices than any other farmers in the world. And their response to the demands of the present emergency has been in every way remarkable. Last spring their planting exceeded by 12,000,000 acres the largest planting of any previous year, and the yields from the crops were record-breaking yields. In the fall of 1917 a wheat acreage of 42,170,000 was planted, which was 1,000,000 larger than for any preceding year, 3,000,000 greater than the next largest, and 7,000,000 greater than the preceding five-year average.

"We are fighting, therefore, as truly for the liberty and self-government of the United States as if the war of our own Revolution had to be fought over again; and every man in every business in the United States must know by this time that his whole future fortune lies in the balance. Our national life and our whole economic development will pass under the sinister influences of foreign control if we do not win."—President Wilson.

"But I ought to say to you that it is not only necessary that these achievements should be repeated, but that they should be exceeded. I know what this advice involves. It involves not only labor but sacrifice, the painstaking application of every bit of scientific knowledge and every tested practice that is available. It means the utmost economy, even to the point where the pinch comes. It means the kind of concentration and self-sacrifice which is involved in the field of battle itself, where the object always looms greater than the individual. And yet the Government will help, and help in every way that is possible. The impression which prevails in some quarters that while the Government has sought to fix the prices of foodstuffs, it has not sought to fix other prices which determine the expenses of the farmer, is a mistaken one. As a matter of fact, the Government has actively and successfully regulated the prices of many fundamental materials underlying all the industries of the country, and has regulated them not only for the purchases of the Government but also for the purchases of the general public, and I have every reason to believe that the Congress will extend the powers of the Government in this important, and even essential, matter so that the tendency to profiteering which is showing itself in too many quarters may be effectively checked. In fixing the prices of foodstuffs the Government has sincerely tried to keep the interests of the farmer as much in mind as the interests of the communities which are to be served, but it is serving mankind as well as the farmer, and everything in these times of war takes on the rigid aspect of duty.

"I will not appeal to you to continue and renew and increase your efforts. I do not believe that it is necessary to do so. I believe that you will do it without any word or appeal from me, because you understand as well as I do the needs and opportunities of this great hour when the fortunes of mankind everywhere seem about to be determined and when America has the greatest opportunity she has ever had to make good her own freedom and in making it good to lend a helping hand to men struggling for their freedom everywhere. You remember that it was farmers from whom came the first shots at Lexington, that set aflame the Revolution that made America free. I hope and believe that the farmers of America will willingly and conspicuously stand by to win this war also. The toil, the intelligence, the energy, the foresight, the self-sacrifice, and devotion of the farmers of America will, I believe, bring to a triumphant conclusion this great last war for the emancipation of men from the control of arbitrary government and the selfishness of class legislation and control, and then, when the end has come, we may look each other in the face and be glad that we are Americans and have had the privilege to play such a part."

"It has turned out that the forces that fight for freedom, the freedom of men all over the world as well as our own, depend upon us in an extraordinary and unexpected degree for sustenance, for the supply of the materials by which men are to live and to fight, and it will be our glory when the war is over that we have supplied those materials and supplied them abundantly, and it will be all the more glory because in supplying them we have made our supreme effort and sacrifice."—President Wilson.

[Telegram.]

CHAMPAIGN, ILL.,
Jan. 31–Feb. 1, 1918.

Hon. D. F. HOUSTON, *Secretary,*
Washington, D. C.:

The following resolution was adopted by the corn growers' and stockmen's conference. Kindly communicate to President Wilson: "*Be it resolved,* That we, the farmers and stockmen of the State of Illinois, assembled in conference at the University of Illinois, express our gratitude and appreciation for the message from the President of the United States to the farmers of Illinois, delivered in our convention today; *And be it further resolved,* That we pledge to the President of the United States our supreme effort to discharge the duties expected from the farmers in the way of men, money, and food."

EDMUND J. JAMES.

HOME GARDENING INSTRUCTIONS.

"Home Gardening in the South," a new bulletin just issued by the United States Department of Agriculture for free distribution, takes account of the special crop conditions of the Southern States and discusses them in a manner designed to help in the utilization for home gardening of land that heretofore has not been productive of human food.

Because of the great necessity for increasing the Nation's food supplies this year, the home gardening movement is expected to be of much greater scope even than the campaign of last year.

The bulletin for the South treats, among other topics, the following:

Location of the garden, plan and arrangement of the garden, importance of sunlight, succession and rotation of crops, methods of growing early plants, tools for the garden, seeds for the garden, preparation of the soil and improving its texture, cultivation and irrigation of garden crops, insects and diseases affecting garden crops, storage of vegetables for the garden. Cultural suggestions are given for all the common vegetables.

When something seems drudgery, think of the trenches.

Those who can't nurse can keep people from getting sick—and what's that about an ounce of prevention?

Good pastures are essential for profitable beef production. Plant pasture grasses over the waste lands and care for the pasture as if it were a regular money crop.

GROW CRIMSON CLOVER.

Valuable for Hay, Ensilage, and Pasture—Improves Soil When Plowed Under—Good Cover Crop.

The fact that crimson clover makes a good growth early in the spring, which furnishes green forage and splendid pasture for all farm stock, is one of the chief reasons why it should be more extensively grown. For feeding purposes it may be used as a soiling crop, hay, ensilage, and pasture. It is of special value as a green-manure crop to increase the humus and nitrogen content of the soils upon which it is produced. Even when cut for hay or seed the stubble and roots which remain greatly increase the soil's fertility. These advantages, together with methods of caring for the crop, are discussed in Farmers' Bulletin 597, "Crimson Clover: Utilization," recently published by the United States Department of Agriculture.

When to Cut for Hay.

In order to obtain the best hay, crimson clover should be cut when the most advanced heads are beginning to show faded flowers at their base. At this stage the plants contain a maximum amount of protein and dry matter while the leaves are still present and the stems are comparatively green. The danger of later cutting lies in the fact that the short hairs on the stems and flower heads soon become dry and stiff, and in this state are more likely to form hard hair balls in the intestinal tracts of horses and mules to which the hay is fed. These hair balls become solid and compact and nearly always cause death, but they can be prevented by feeding a mixture of hay and by sprinkling the crimson clover with water 12 hours before feeding.

It is important in curing crimson clover that the leaves be not allowed to become so dry as to crumble, which results in a very dusty hay as well as in much loss. This clover cures rather readily, and as a result spontaneous combustion is rare. It is important, however, that the hay should be free from external moisture such as dew or rain when placed in the barn, as this condition often causes it to develop heat.

Good Roughage Feed for Cows.

Crimson clover hay is considered by dairymen to be fully equal, if not superior, to red or alsike clover as a roughage feed for cows. Its ability to make growth very early in the spring brings it to the stage where it can be cut and fed green to cattle at a time when most other green growth is just starting. It furnishes earlier pasture than any of the other clovers, but the disadvantage is that the period when it can be utilized in this way is comparatively short. This drawback is overcome by seeding both late and early strains in addition to the ordinary variety, when the season can be extended two months or more. It will stand limited pasturing in the fall; in fact, if sheep and calves are permitted to graze on it the plants stool out better.

"You remember that it was farmers from whom came the first shots at Lexington, that set aflame the Revolution that made America free. I hope and believe that the farmers of America will willingly and conspicuously stand by to win this war also."—President Wilson.

Value as Green Manure Crop.

A full crop of crimson clover, including the roots, is about 10 tons per acre, and when turned under to improve the soil is ordinarily regarded as equivalent in its effects to an application of about 8 tons of barnyard manure. When the crop is cut about 40 per cent as much nitrogen is returned to the soil as when the entire plant is plowed under. It has been found desirable to plow under the crop at least a week or 10 days after it commences to bloom. This gives plenty of time for the preparation of the ground for spring-seeded crops. It is generally considered that a bushel of crimson clover seed sown on 4 acres of ground will increase the succeeding yield of corn about the same amount as would a ton of commercial fertilizer applied at the rate of 500 pounds per acre on 4 acres of similar land.

Crimson clover in sections where it succeeds is regarded as a most satisfactory cover crop on soils which would otherwise be left bare during the winter. It is especially valuable in orchards, for it makes rapid growth in the fall, reducing the moisture, and to some extent the plant food in the soil, and inducing the trees to stop growing and ripen their wood in advance of cold weather. A good stand of crimson clover not only reduces erosion, but on sandy fields it prevents the blowing of the soil by wind and serves to hold the snow and thus conserve the moisture.

The number of creameries and cheese factories has been increased, as well as the efficiency in their operations. Efforts have been made to encourage the use of cottage cheese as a substitute for meat, and six experts have devoted their entire time to encouraging the production of this form of cheese on the farm.—Extracted from Annual Report of Secretary of Agriculture.

Start with pure stock—that will make the increase and eggs for hatching marketable at better prices.

GOOD FARM BUTTER.

Production Depends on Standardized Methods and Care in Carrying Out Necessary Details.

The butter made on the farms of the United States may be materially improved in quality in most cases, if standard methods are employed and greater care is exercised in carrying out the necessary details, says the United States Department of Agriculture. The department gives the following outline of the essential steps to be taken in making good farm butter:

Details in Process of Butter Making.

(1) Produce clean milk and cream. Cool the cream immediately after it comes from the separator. Clean and sterilize all utensils.

(2) Ripen or sour the cream at from 65° to 75° F. until mildly sour. Always use a thermometer in order to know that the right temperature is reached.

(3) Cool the cream to churning temperature or below, and hold at that temperature for at least two hours before churning.

(4) Use a churning temperature—usually between 52° and 66° F.—that will require 30 or 40 minutes to obtain butter.

(5) Clean and scald the churn, then half fill it with cold water and revolve until churn is thoroughly cooled, after which empty the water.

(6) Pour the cream into the churn through a strainer.

(7) Add butter color—from 20 to 35 drops to a gallon of cream—except late in the spring and early in the summer.

(8) Put the cover on tight; revolve the churn several times; stop with bottom up, and remove stopper to permit escape of gas; repeat until no more gas forms.

(9) Continue churning until butter granules are formed the size of grains of wheat.

(10) Draw off the buttermilk through the hole at the bottom of the churn, using a strainer to catch particles of butter. When the buttermilk has drained out, replace the cork.

(11) Prepare twice as much wash water as there is buttermilk, and at about the same temperature. Use the thermometer; do not guess at temperatures. Put one-half the water into the churn with the butter.

(12) Replace the cover and revolve the churn rapidly a few times, then draw off the water. Repeat the washing with the remainder of the water.

(13) The butter should still be in granular form when the washing is completed.

(14) Weigh the butter.

(15) Place the butter on the worker and add salt at the rate of three-quarters of an ounce to a pound of butter.

(16) Work the butter until the salt is dissolved and evenly distributed. Do not overwork.

(17) Pack in any convenient form for home use, or make into 1-pound prints for market, wrapping the butter in white parchment paper and inclosing in a paraffined carton.

(18) Clean the churn and all butter-making utensils.

BERMUDA ONION SEED.

Southwest Can Produce Regularly Better Seed Than Is Imported.

Recommending that American seed growers should supply the home demand for Bermuda onion seed, the United States Department of Agriculture says that the seed may be profitably grown in certain regions of the southwestern United States.

In 1916 the United States imported from Teneriffe, Canary Islands, about 75,000 pounds of Bermuda onion seed. The usual retail price of this seed is from $2 to $2.50 a pound, though in years of scarcity the price has gone as high as $6 a pound. Until recently this country produced no Bermuda onion seed at all; and though good yields of the seed have been obtained at Laredo, Tex., the yield has not been wholly dependable from year to year. While in 1916 and the past year considerable California-grown Bermuda seed has been offered to the trade, the importance of producing a supply of seed from carefully selected mother bulbs was given special prominence by the results obtained through work of the Department of Agriculture begun at Sacaton, Ariz., in 1913 and 1914.

Home-grown Seed Promises Better Yields.

A few years ago the Bureau of Plant Industry cooperated with the Office of Indian Affairs in an experimental growing of Bermuda onion seed on the Pima Indian Reservation at Sacaton, Ariz., and the results show that there, and in similar localities, reliable supplies of onion seed, equal to the best imported from Teneriffe, can be grown. It is further stated by the Department of Agriculture that seed from carefully selected stock has been uniformly superior to the run of imported Bermuda seed. Since, onion growers in the Coachella Valley of California have achieved results similar to those at Sacaton. The department feels justified in saying that the American demand can soon be supplied with home-grown seed. Furthermore, the home seed when grown from mother bulbs of carefully selected strains promises a 25 per cent better yield than that from the imported seed. In 1917 the Bermuda-onion crop of the United States, largely from Texas, was nearly three million crates. An increase of one-fourth means, therefore, says the department, that the incentive for a home-grown seed industry goes far beyond the mere question of replacing the volume of imported seed with an equal quantity raised at home.

LOOK AFTER FARM TOOLS.

Now Is the Time to Put Every Farming Utensil in Working Order.

Farm machinery in recent years has played a very important rôle in crop production, and this year its place in farm operations is more important than ever before. The proper amount and kind of tools will enable the farmer to work more land and obtain better returns. In fact, the increased use of farm machinery frequently makes it possible to manage the farm with less help. One of the greatest causes of deterioration of farm tools and implements is their exposure to the weather and the failure upon the part of the farmer or laborer to clean them properly before they are put away for the season when they are not in active use. There is a wide variation in the length of life of those farm implements treated properly and those left to rust out in the fields. This difference is sufficient to pay high interest on the initial cost of good farm machinery. The lack of proper storage and care during the winter months is responsible for much of the depreciation. This season also is the best time in which to repair machines and put them in proper mechanical condition.

The farmer has everything to gain and nothing to lose by placing his order as early as possible for new machines and repair parts which will be needed next season. If this fact is true in normal times, its importance is magnified many times now that shipments frequently require longer time.

The farmer has been advised times without number concerning the desirability of overhauling farm tools and implements during the slack season. Whether such advice is necessary or whether it is acted upon in normal times is not a question to be considered now. The need for ample machinery, running smoothly and without breakdowns in 1918, is more important to the farmer than ever before. To this end steps should be taken this winter.

Those who can't fight must do the next best thing they can.

Don't overstock your yard. Twenty to thirty square feet for each hen is an average allowance.

HATCH EARLY.

Take Advantage of the Best Growing Season for Young Chicks—Get Largest Returns from Your Poultry.

In its campaign to increase poultry production the United States Department of Agriculture puts special emphasis upon the importance of early hatching, because that is the key to the whole situation. While chickens can be hatched at any time of the year, it is the chickens hatched early in the spring that give the best results. Unless a special effort is made to hatch early on the farms throughout the country the hatching season coincides too closely with the planting season, and hatching operations are reduced on that account.

Early Hatching Gives Best Results.

Early-hatched chickens give the best results because they are, as a rule, the strongest and most vigorous. They are produced from eggs laid while the hens are in their best breeding condition. After a long period of laying, hens lose something of their vitality and their capacity to transmit vigor to their offspring, and so late-hatched chickens are, on the whole, decidedly inferior to early-hatched in inherited vigor and constitution.

Because they are more thrifty and vigorous, early-hatched chickens make quicker, better, and cheaper growth than late chickens. Thrifty chickens get more from a given quantity of feed than others. Weak and undersized chickens often consume as much feed as much larger and better-developed birds and still make no perceptible growth.

Early Chicks Withstand Summer Heat.

Early chickens develop before summer to the stage where they can withstand extreme heat and the attacks of parasites, which are most numerous and troublesome in hot weather. Late chickens are likely to be caught by severe heat just at the stage of their growth when heat is most debilitating to them. In their weakened condition they then become an easy prey to lice and mites, their growth is interrupted, and when the cold wet weather comes in the fall they are peculiarly susceptible to it. Vigorous early chicks find the coolness stimulating and are not injured by the dampness.

Reduces Hatching Risks.

Early hatching reduces the risks due to the vicissitudes of hatching. When eggs do not hatch well early in the season there is time to find the reason for poor hatching and correct it before the season is too far advanced to get reasonably early chicks in the numbers desired. In that case poultry production may not be reduced at all, and egg production is retarded only a few weeks. When late hatching is not satisfactory the crop of poultry is cut short and egg production fails.

Early-hatched cockerels are ready for the market when prices are highest. Early-hatched pullets lay when prices of eggs are highest.

PLANT SORGHUM FOR SIRUP.

Shortage of Seed Likely to Cause Shortage of Cane Sirup.

Plant sorghum for sirup wherever possible in 1918, is the advice of the United States Department of Agriculture. An early October frost in the Southern States has seriously reduced the supply of sugar cane for seed-cane cuttings to the point where all that is available will be needed for planting the 1918 crop of sugar cane in the sugar-producing sections. In cane-sirup producing sections where seed of sirup varieties is not available, growers are urged to substitute sweet sorghum. In areas where sugar cane is not grown but which are suitable for sorghum, farmers are urged to plant sweet sorghum wherever possible. It is believed that in this way much of the cane sirup lost because of scarcity of seed cane can be replaced by sorghum sirup.

How to Get Sweet Sorghum Seed.

All growers or seed dealers having for sale sweet sorghum seed of a variety suitable for growing in Southern States should notify their State seed stocks committee, State experiment station, or the Seed Stocks Committee of the United States Department of Agriculture, Washington, D. C., stating the variety, quantity of seed for sale, and its price. Those desiring sweet sorghum seed should make inquiry of any of the agencies named, stating the quantity of seed desired for sirup production and the variety preferred.

The production of sorghum sirup has been greatly extended during the past year and is capable of still further development not only in the South but in other parts of the country, the department points out.

In view of the importance of planting a large acreage of sweet sorghum, it is urgent that those having seed of these varieties do not feed this to poultry or use it in any other way until after seeding time is past.

Because cereals are relatively low in price and because most of them furnish some tissue-building materials as well as body fuel, it is good economy to use them freely and in the place of part of the more expensive foods when this can be done without reducing the food value of the meal.

FIVE DAIRY BREEDS.

Origin and Distinguishing Characteristics of Cattle Most Generally Known in United States.

Five breeds of dairy cattle have attained considerable prominence in the United States—the Ayrshire, Brown Swiss, Guernsey, Holstein-Friesian, and Jersey, each of which has certain distinct characteristics not found in the other breeds, but no one breed excels in all points. Each breed is considered superior to the others in certain particulars, and is discussed in Farmers' Bulletin 893 of the United States Department of Agriculture, a publication which will be found valuable to dairy-cattle breeders.

In selecting a breed, a dairyman should take local conditions and market requirements into consideration in connection with the characteristics of the various breeds. He should give weight to the fact that a breed is already established in his community. The predominance of a certain breed in a section offers many advantages. For instance, a market is established, surplus stock may be disposed of to better advantage, cooperative advertising may be used, and bulls may be bought cooperatively or exchanged readily among breeders. Personal preference for a certain breed should not be allowed to cause the selection of a breed unsuited to local conditions.

Origin of Ayrshires.

The Ayrshire breed originated in the County of Ayr in southwestern Scotland and has only been sufficiently developed to be established as a type within the last hundred years. This breed is not well known in many sections of the United States—New England, New York, and Pennsylvania probably containing the largest number of its representatives. There is a small distribution in the Middle Atlantic States and the Pacific Northwest.

The color of this breed varies from a medium red to a very dark mahogany brown and white. The cattle have long horns which turn outward, then forward and upward. Ayrshires are characterized by quick, brisk actions. They have a highly nervous disposition and a pronounced ability as "rustlers"—the obtaining of a livelihood on scant pastures. Cows of this breed average 1,000 pounds in weight and bulls average about 1,600.

Ayrshire milk has comparatively little color and has small fat globules, because of which the milk stands shipping well without churning. The percentage of butter fat is medium.

Brown Swiss Breed.

The Brown Swiss breed, which does not have a widespread distribution in the United

States, originated in the Canton of Schwyz, in Switzerland, and is found principally in New York and Wisconsin.

The cattle vary in color from a light-gray mouse color or brownish-dun to dark brown. They are mild and docile and are excellent grazers, especially on rough land. Cows average about 1,250 pounds in weight and bulls from 1,500 to 2,500 pounds.

This breed ranks well in milk production, with a moderate percentage of fat.

Guernsey Characteristics.

The Guernsey breed developed on the Channel Islands of Guernsey and Alderney, although probably the parent stock came from Normandy, France. This breed has maintained a steady growth in numbers and popularity in the country, and its largest numbers are found in the Eastern and Middle Western States.

The characteristic colors of Guernseys are some shade of fawn and white. Cows average about 1,050 pounds and bulls about 1,600 pounds in weight. Guernsey milk is noted for its extremely yellow color and high percentage of butter fat.

Holstein Cattle.

The Holstein-Friesian, commonly known as the Holstein breed, originated in the northern part of Holland, where it has been bred for centuries. Holsteins have grown greatly in numbers and popularity in recent years in this country and are most numerous in the United States in the Middle Atlantic, Middle Western, and Pacific sections.

Holstein cattle are of black and white color. They are docile and even tempered, not good "rustlers," and do best when plenty of feed is available. Holstein cows average about 1,250 pounds and bulls 1,800 pounds in weight. The average of milk production is high, but the percentage of butter fat is comparatively low.

Features of Jerseys.

Jersey cattle, the most numerous breed in the United States, originated in the Island of Jersey. Jerseys and Guernseys probably had the same foundation stock, but have been developed toward different ideals so that the breeds now differ in a number of particulars.

Jerseys vary considerably in color. Shades of fawn, squirrel gray, mouse color, and very dark brown are common. Jerseys have a highly organized nervous system and are usually somewhat excitable, responding quickly to good treatment and good feed. Cows average about 900 pounds and bulls 1,500 pounds in weight. The Jersey cow gives rich, yellow-colored milk and is an excellent butter-fat producer.

Every food-saving kitchen takes three pot shots a day at the enemy.

DOMESTIC PEANUT OIL.

Specialists Say That American Millers Should Secure Entire Market—Imports Now Cut Off.

With improved American machinery for cleaning, shelling, and pressing peanuts, American millers should be able to produce as high-grade oil as that made in foreign countries at a price which will secure the entire domestic market for United States mills.

This was the assertion of H. S. Bailey, of the Bureau of Chemistry, United States Department of Agriculture, in an address before southern oil-mill superintendents.

Problem Must Be Studied.

"While you can get oil from peanuts if you drive them into your cottonseed conveyors, clean them in the same reels and over the same screens, grind them in the regulation hullers, cook them, and press them just as though they were cotton seed," said Mr. Bailey, "you will not get as good results as if you studied your new problem at every step and fitted each machine and operation to the new material."

Imported Oils of High Grade.

Before the war cut off practically all imports of French and Dutch peanut oils the United States was importing nearly 900,000 gallons a year, or about one-eighth as much as of olive oil, and at an average price for all grades, including soap stock, of more than half that of edible olive oil. In Hamburg in 1914 there was a difference of more than 2 cents a pound in favor of peanut oil as against cotton seed, and in Liverpool the edible grades will bring 1 to 1½ cents more a pound in barrels than the best American butter oil. These peanut oils, however, were not made from cooked nuts, but were pressed cold without any shells. If they are to compete in this country with the foreign oils, the specialist said, the millers must make a grade of peanut oil which can be sold for salad and cooking purposes without any treatment other than that it receives at the crude mills.

Peanut-oil mills, the specialist declared, should be located where the farmers can profitably grow the Spanish type of peanuts, which are higher in oil content and have less shell than the larger Virginia varieties. The mills should be equipped with peanut cleaners, and all the nuts, after going over screens to remove the stocks, stones, and other trash, should be thoroughly scoured.

Market for By-products.

In making use of by-products there is a growing market for peanut hulls (which contain less than one-half of 1 per cent of oil) and it is just beginning to be realized how peanut cake can be used for feed. There is already a demand for hull-less peanut cake for human food, and no reason is known why peanut flour should not become a popular article in human sustenance, the millers were told.

LIVE-STOCK MOVEMENT.

Summary of Live Stock Handled at Stockyards During Last Year.

Increased receipts of cattle at stockyards in 53 cities during 1917 over recipts in 1916 are shown by the monthly report on live stock at stockyards issued by the Bureau of Markets, United States Department of Agriculture. The increase in cattle receipts amounted to 4,657,152, while hog receipts declined 7,379,435 and sheep showed a decrease of 1,762,247 head. Receipts of horses and mules at 45 cities during 1917 decreased 81,465 from receipts in 1916.

Shipments from stockyards of live stock known as "stockers and feeders," to be fattened on range and farm, increased during 1917 over shipments in 1916. Cattle shipments from 35 cities increased 862,140; hog shipments from 16 cities increased 497,363; and sheep shipments from 24 cities increased 977,828.

During December, 1917, the "stocker and feeder" shipments of cattle, hogs, and sheep all increased over shipments during December, 1916. Receipts at stockyards increased in the case of cattle and sheep, but hog receipts showed a large decrease in December, 1917, compared with December, 1916.

Total Receipts and Shipments.

Total receipts at 53 cities during 1916 and 1917 were: Cattle, 1916, 17,552,566; 1917, 22,209,718. Hogs, 1916, 43,112,122; 1917, 35,732,687. Sheep, 1916, 20,433,689; 1917, 18,671,442.

Total "stocker and feeder" shipments were: Cattle from 35 cities, 1916, 3,843,134; 1917, 4,705,274. Total shipments of hogs from yards in 16 cities, 1916, 142,279; 1917, 639,642. Total shipments of sheep from yards in 24 cities, 1916, 3,220,995; 1917, 4,198,823.

STARVE GARDEN PEST.

Most Effective Method of Combating Nematode Gallworms.

The very serious losses caused by the gallworm nematode in gardens, especially in the South, have resulted in the trial of numerous methods of control. One of the most effective methods yet tested is to starve

the pest. This may be accomplished by dividing the garden into two parts, one of which is available for cultivation, fowls being kept on the other half and changed from one to the other about every two to four years. The gallworm is absolutely dependent on the roots of the higher plants for its nourishment. If no such plants are allowed to grow, the pest is starved, and in the course of a year or two it can be brought to a stage where its ravages will not be serious.

Alternate Garden and Fowl Run.

The suggested alternation of fowl run with garden may be brought about simply by fencing in the fowls. If possible, it would be well to arrange the division of the land in the direction of its slope, so that the drainage will not be from the garden to the fowl run or vice versa. The idea is to keep the fowl run free from vegetation for a year or two. This means that about the maximum number of fowls for the area must be kept and that the soil must be occasionally spaded or otherwise stirred. This stirring of the soil is a good thing for the fowls and helps also to reduce the nematode pest, for every time the earth is spaded fresh soil is brought to the action of the sun and air and becomes more or less disinfected through their action on the eggs and larvæ of the pest.

There are thousands of gardens where this procedure is practicable. Definite information with regard to the existence of the gallworm nematode may be obtained by submitting abnormal roots to the Department of Agriculture for examination.

POISONED PASTE FOR "SLICKERS."

A recipe for poisoned paste, to be used in exterminating the silverfish or "slicker," is given by the United States Department of Agriculture in Farmers' Bulletin 902. This household pest is variously known as the silver louse, bristle-tail, etc. It is a small insect that frequently does much damage to books, articles of clothing, or anything upon which there is any paste or glue. The silverfish always shuns the light. It is the small, glistening insect that darts out from shelves and closets when books, clothing, or other articles are moved. The rapidity with which it scurries about when thus disturbed and its light glistening body explain the names that have been given it. The silverfish is one of the most serious library pests. Because of its fondness for anything of a starchy nature the insect may be eliminated by placing in book shelves, wardrobes, and closets strips of cardboard upon which flour paste containing the poison recommended in Farmers' Bulletin 902 has been spread. It is possible also to obtain relief by dusting pyrethrum, or bubach powder, upon bookshelves or other places, but this powder must be renewed often, as it loses its value as an insecticide after long exposure to the air.

BEEF COW FEEDING.

Use of Farm By-products in Place of Expensive Rations Reduces Winter Feed Costs.

In Bulletin No. 615 "The Economical Winter Feeding of Beef Cows in the Corn Belt," United States Department of Agriculture investigators cite conditions on five farms in support of their arguments that winter feed costs may be largely reduced, without detriment to the cows or calves, through greater use of farm by-products in rations.

Avoid feeding excessively, avoid costly rations, use more cheap roughages, such as straw and corn stover, feed silage where conditions make it more economical than corn fodder—this is advice in the bulletin.

Would Eliminate Excessive Amount of Corn.

The first farm used as an example is in east central Iowa. The breeding herd consisted of a grade bull and 22 grade cows, from which 20 calves were obtained. The cows were given excessive amounts of high-priced feed for both of the years for which records were procured, says the bulletin.

They were turned on stalks November 15. Winter feeding began a few days later and lasted until May 1, when the cows were again turned on pasture. During the 165-day interval each cow received the following:

Stalks	1¼ acres, at $1 an acre.
Fodder	⅔ acre, at $35 an acre.
Mixed hay	¾ ton, at $10 a ton.
Corn	2 bushels, at $0.65 a bushel.

As the average yield of corn on this farm was 50 bushels to the acre, and as the best corn was cut for fodder, the cows, considering the corn in the fodder and the additional grain fed, received a total of 22 bushels per head. This is almost a fattening ration. If the corn had been husked from the fodder and only the stover fed, there would have been sufficient roughage for the cows. Estimating that three-fourths of a ton of stover was eaten per acre of stalks and that the stover from the fodder fed would go 2 tons to the acre, and allowing the cows 3 bushels of corn each during the winter instead of 22, they would receive the following daily ration:

Stover	pounds	20.6
Mixed hay	do	9.0
Corn	do	1.0

This ration would be sufficient for their needs.

By merely eliminating the excessive amount of corn (19 bushels) from the ration a saving of $11.40 could have been made and the feed bill reduced very nearly one-half, or from $24 to $12.60 per cow.

Satisfactory Rations Cited.

Rations on the fifth farm inspected by the investigators are pronounced very satisfactory. The bulletin tells of it to illustrate how a farmer may grow emergency forage crops to take the place of hay when the hay crop is a failure.

This farm (240 acres) is in northeastern Kansas. Seventy acres were in corn, 25 in oats, 25 in wheat, and 100 in pasture. Because of the unusual rainy weather prevailing in that section the oats and wheat for the year in which the record was taken were practically destroyed and the straw was absolutely worthless for feeding. To provide for a lack of hay 15 acres of millet and 4 of sorghum were grown.

The herd consisted of a bull and 15 grade cows, from which 15 calves were obtained. The cows were turned on stalks November 1 and allowed to run there until spring. They received approximately 3 acres of stalks, 1 ton of millet hay, and one-third of a ton of sorghum fodder each. Valuing the millet at $4.50 a ton and the sorghum at $4 a ton, the winter feed cost per cow was $8.20. The cows were carried through the entire year for a net cost of $25.85.

The bulletin strongly recommends that farmers who raise their own feeder cattle take more pains to find out the needs of their animals and feed them accordingly. They are invited to write for advice to their own State experiment stations or the United States Department of Agriculture.

AVOID BUTCHERING LOSSES.

Losses through pork spoilage resulting from warm weather soon after hog killing could be prevented in many cases if farmers would watch the weather reports and get in communication with the observers, according to officials in the United States Weather Bureau. The official in charge of one of the Weather Bureau offices in a Southern State describes a method used successfully in that locality which has prevented spoilage. A list of the farmers having telephones was obtained from the local telephone company. Representatives of the Weather Bureau then communicated with the farmers with a view to ascertaining whether they had hogs to kill, how many, when it was desired to butcher, and if they were willing to wait until notified by the Weather Bureau official as to when it would be safe to kill.

Farmers were not advised to kill even though a cold wave had been forecast, unless the weather map indicated that the cold weather would last for several days and that the prediction would be verified beyond a doubt. Ordinarily farmers in that region would butcher when information of a cold wave was received, but losses often were sustained when such spells were of brief duration.

This method was used all last winter with but little loss of meat. In some instances farmers waited a week or two longer than they desired, but it paid them to do so. One man, after waiting three weeks for a suitable time to butcher, killed 75 hogs in one day and saved them all. The warnings were given out from the Weather Bureau not only by telephone but by whistle signals, the siren of the electric light plant being used for the purpose.

MILK RECORDS.

Average Production of Dairy Cows of Five Breeds Most Generally Known in the United States.

In Farmers' Bulletin 893 of the United States Department of Agriculture, "Breeds of Dairy Cattle," the average productions of five breeds most generally known in the United States are shown.

Ayrshire Records.

For Ayrshires the average of the 2,598 cows that have completed yearly records for advanced registry is 9,555 pounds of milk testing 3.95 per cent of butter fat, amounting to 377.51 pounds of fat. The ten highest milk producers of this breed range from 25,329 to 18,745 pounds of milk and the average of these ten highest producers is 21,538.8 pounds of milk. The ten highest butter-fat producers among Ayrshires range from 955.56 to 744.73 pounds, with an average, for these ten, of 855.4 pounds of butter fat.

Brown Swiss Records.

In the Brown Swiss breed the average of 199 cows that have completed yearly records for the register of production is 10,868.7 pounds of milk, testing 3.995 per cent, amounting to 433.45 pounds of butter fat. The ten highest milk producers of the breed range from 19,460.6 to 16,496.7 pounds of milk, with an average, for these ten, of 17,372.2 pounds. The ten highest butter-fat producers of the Brown Swiss range from 798.16 to 647.30 pounds, with an average, for these ten, of 683.72 pounds of butter fat.

Guernsey Records.

In the Guernsey breed the average of 6,200 cows that have completed a year's record for advanced registry is 8,934.44 pounds of milk, testing 4.99 per cent, amounting to 446.01 pounds of butter fat. The ten highest producers of this breed range from 24,008 to 17,297.51 pounds of milk with an average, for these ten, of 19,-337.9 pounds of milk. The ten highest Guernsey butter-fat producers range from 1,098.18 to 910.67 pounds, an average, for these ten, of 976.75 pounds of butter fat.

Holstein Records.

Among Holsteins, 3,220 cows that had completed a yearly record for advanced registry averaged 14,622.7 pounds of milk, testing 3.424 per cent butter fat, amounting to 500.7 pounds of fat. The ten highest producers of this breed averaged from 31,-246.9 to 28,826.4 pounds of milk, an average, for these ten, of 29,898.34 pounds of milk. The ten highest Holstein butter-fat producers averaged from 1,205.09 to 1,017.28 pounds, an average, for these ten, of 1,090.89 pounds of butter fat.

Jersey Records.

In the Jersey breed, the average of 5,244 cows that had completed yearly records for the register of merit was 7,792 pounds of milk, testing 5.35 per cent, making 417 pounds of butter fat. The ten highest milk producers ranged from 19,-694.8 to 16,633.2 pounds, an average, for these ten, of 17,703.4 pounds of milk. The ten highest butter-fat producers range from 999.1 to 875.2 pounds, an average, for these ten, of 943.1 pounds of butter fat.

Patriotism is not pessimism.

Silage is the best roughage for fattening any class of cattle.

The best practical way to protect bread from mold is to keep it in a dry, air-tight box.

The squirrel does not know how to can, but he stores his food for the lean season. Learn a lesson from the squirrel.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary, of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, R. A. PEARSON.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. SPILLMAN, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals; and experiments in fur farming.

Office of Public Roads and Rural Engineering, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act.

Division of Publications, JOS. A. ARNOLD, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., FEBRUARY 20, 1918. No. 29

ADDRESS OF THE PRESIDENT.

Delivered at a Joint Session of the Two Houses of Congress February 11, 1918.

GENTLEMEN OF THE CONGRESS: On the 8th of January I had the honor of addressing you on the objects of the war as our people conceive them. The prime minister of Great Britain had spoken in similar terms on the 5th of January. To these addresses the German chancellor replied on the 24th and Count Czernin, for Austria, on the same day. It is gratifying to have our desire so promptly realized that all exchanges of view on this great matter should be made in the hearing of all the world.

Count Czernin's reply, which is directed chiefly to my own address of the 8th of January, is uttered in a very friendly tone. He finds in my statement a sufficiently encouraging approach to the views of his own Government to justify him in believing that it furnishes a basis for a more detailed discussion of purposes by the two Governments. He is represented to have intimated that the views he was expressing had been communicated to me beforehand and that I was aware of them at the time he was uttering them; but in this I am sure he was misunderstood. I had received no intimation of what he intended to say. There was, of course, no reason why he should communicate privately with me. I am quite content to be one of his public audience.

Count von Hertling's reply is, I must say, very vague and very confusing. It is full of equivocal phrases and leads it is not clear where. But it is certainly in a very different tone from that of Count Czernin, and apparently of an opposite purpose. It confirms, I am sorry to say, rather than removes, the unfortunate impression made by what we had learned of the conferences at Brest-Litovsk. His discussion and acceptance of our general principles lead him to no practical conclusions. He refuses to apply them to the substantive items which must constitute the body of any final settlement. He is jealous of international action and of international counsel. He accepts, he says, the principle of public diplomacy, but he appears to insist that it be confined, at any rate in this case, to generalities and that the several particular questions of territory and sovereignty, the several questions upon whose settlement must depend the acceptance of peace by the 23 States now engaged in the war, must be discussed and settled, not in general council, but severally by the nations most immediately concerned by interest or neighborhood. He agrees that the seas should be free, but looks askance at any limitation to that freedom by international action in the interest of the common order. He would without reserve be glad to see economic barriers removed between nation and nation, for that could in no way impede the ambitions of the military party with whom he seems constrained to keep on terms. Neither does he raise objection to a limitation of armaments. That matter will be settled of itself, he thinks, by the economic conditions which must follow the war. But the German colonies, he demands, must be returned without debate. He will discuss with no one but the representatives of Russia what disposition shall be made of the peoples and the lands of the Baltic provinces; with no one but the Government of France the "conditions" under which French territory shall be evacuated; and only with Austria what shall be done with Poland. In the determination of all questions affecting the Balkan States he defers, as I understand him, to Austria and Turkey; and with regard to the agreements to be entered into concerning the non-Turkish peoples of the present Ottoman Empire, to the Turkish authorities themselves. After a settlement all around, effected in this fashion, by individual barter and concession, he would have no objection, if I correctly interpret his statement, to a league of nations which would undertake to hold the new balance of power steady against external disturbance.

It must be evident to everyone who understands what this war has wrought in the opinion and temper of the world that no general peace, no peace worth the infinite sacrifices of these years of tragical suffering, can possibly be arrived at in any such fashion. The method the German chancellor proposes is the method of the Congress of Vienna. We can not and will not return to that. What is at stake now is the peace of the world. What we are striving for is a new international order based upon broad and universal principles of right and justice—no mere peace of shreds and patches. Is it possible that Count von Hertling does not see that, does not grasp it, is in fact living in his thought in a world dead and gone? Has he utterly forgotten the Reichstag resolutions of the 19th of July, or does he deliberately ignore them? They spoke of the conditions of a general peace, not of national aggrandizement or of arrangements between State and State. The peace of the world depends upon the just settlement of each of the several problems to which I adverted in my recent address to the Congress. I, of course, do not mean that the peace of the world depends upon the acceptance of any particular set of suggestions as to the way in which those problems are to be dealt with. I mean only that those problems each and all affect the whole world; that unless they are dealt with in a spirit of unselfish and unbiased justice, with a view to the wishes, the natural connections, the racial aspirations, the security, and the peace of mind of the peoples involved, no permanent peace will have been attained. They can not be discussed separately or in corners. None of them constitutes a private or separate interest from which the opinion of the world may be shut out. Whatever affects the peace affects mankind, and nothing settled by military force, if settled wrong, is settled at all. It will presently have to be reopened.

Is Count von Hertling not aware that he is speaking in the court of mankind, that all the awakened nations of the world now sit in judgment on what every public man, of whatever nation, may say on the issues of a conflict which has spread to every region of the world? The Reichstag resolutions of July themselves frankly accepted the decisions of that court. There shall be no annexations, no contributions, no punitive damages. Peoples are not to be handed about from one sovereignty to another by an international conference or an understanding between rivals and antagonists. National aspirations must be respected; peoples may now be dominated and governed only by their own consent. "Self-determination" is not a mere phrase. It is an imperative principle of action, which statesmen will henceforth ignore at their peril. We can not have general peace for the ask-

ing, or by the mere arrangements of a peace conference. It can not be pieced together out of individual understandings between powerful states. All the parties to this war must join in the settlement of every issue anywhere involved in it; because what we are seeking is a peace that we can all unite to guarantee and maintain and every item of it must be submitted to the common judgment whether it be right and fair, an act of justice, rather than a bargain between sovereigns.

The United States has no desire to interfere in European affairs or to act as arbiter in European territorial disputes. She would disdain to take advantage of any internal weakness or disorder to impose her own will upon another people. She is quite ready to be shown that the settlements she has suggested are not the best or the most enduring. They are only her own provisional sketch of principles and of the way in which they should be applied. But she entered this war because she was made a partner, whether she would or not, in the sufferings and indignities inflicted by the military masters of Germany, against the peace and security of mankind; and the conditions of peace will touch her as nearly as they will touch any other nation to which is entrusted a leading part in the maintenance of civilization. She can not see her way to peace until the causes of this war are removed, its renewal rendered as nearly as may be impossible.

This war had its roots in the disregard of the rights of small nations and of nationalities which lacked the union and the force to make good their claim to determine their own allegiances and their own forms of political life. Covenants must now be entered into which will render such things impossible for the future; and those covenants must be backed by the united force of all the nations that love justice and are willing to maintain it at any cost. If territorial settlements and the political relations of great populations which have not the organized power to resist are to be determined by the contracts of the powerful governments which consider themselves most directly affected, as Count von Hertling proposes, why may not economic questions also? It has come about in the altered world in which we now find ourselves that justice and the rights of peoples affect the the whole field of international dealing as much as access to raw materials and fair and equal conditions of trade. Count von Hertling wants the essential bases of commercial and industrial life to be safeguarded by common agreement and guarantee, but he can not expect that to be conceded him if the other matters to be determined by the articles of peace are not handled in the same way as items in the final accounting. He can not ask the benefit of common agreement in the one field without according it in the other. I take it for granted that he sees that separate and selfish compacts with regard to trade and the essential materials of manufacture would afford no foundation for peace. Neither, he may rest assured, will separate and selfish compacts with regard to provinces and peoples.

Count Czernin seems to see the fundamental elements of peace with clear eyes and does not seek to obscure them. He sees that an independent Poland, made up of all the indisputably Polish peoples who lie contiguous to one another, is a matter of European concern and must of course be conceded; that Belgium must be evacuated and restored, no matter what sacrifices and concessions that may involve; and that national aspirations must be satisfied, even within his own Empire, in the common interest of Europe and mankind. If he is silent about questions which touch the interest and purpose of his allies more nearly than they touch those of Austria only, it must of course be because he feels constrained, I suppose, to defer to Germany and Turkey in the circumstances. Seeing and conceding, as he does, the essential principles involved and the necessity of candidly applying them, he naturally feels that Austria can respond to the purpose of peace as expressed by the United States with less embarrassment than could Germany. He would probably have gone much further had it not been for the embarrassments of Austria's alliances and of her dependence upon Germany.

After all, the test of whether it is possible for either Government to go any further in this comparison of views is simple and obvious. The principles to be applied are these:

First, that each part of the final settlement must be based upon the essential justice of that particular case and upon such adjustments as are most likely to bring a peace that will be permanent;

Second, that peoples and provinces are not to be bartered about from sovereignty to sovereignty as if they were mere chattels and pawns in a game, even the great game, now forever discredited, of the balance of power; but that

Third, every territorial settlement involved in this war must be made in the interest and for the benefit of the populations concerned, and not as a part of any mere adjustment or compromise of claims amongst rival states; and

Fourth, that all well-defined national aspirations shall be accorded the utmost satisfaction that can be accorded them without introducing new or perpetuating old elements of discord and antagonism that would be likely in time to break the peace of Europe and consequently of the world.

A general peace erected upon such foundations can be discussed. Until such a peace can be secured we have no choice but to go on. So far as we can judge, these principles that we regard as fundamental are already everywhere accepted as imperative except among the spokesmen of the military and annexationist party in Germany. If they have anywhere else been rejected, the objectors have not been sufficiently numerous or influential to make their voices audible. The tragical circumstance is that this one party in Germany is apparently willing and able to send millions of men to their death to prevent what all the world now sees to be just.

I would not be a true spokesman of the people of the United States if I did not say once more that we entered this war upon no small occasion, and that we can never turn back from a course chosen upon principle. Our resources are in part mobilized now, and we shall not pause until they are mobilized in their entirety. Our armies are rapidly going to the fighting front, and will go more and more rapidly. Our whole strength will be put into this war of emancipation—emancipation from the threat and attempted mastery of selfish groups of autocratic rulers—whatever the difficulties and present partial delays. We are indomitable in our power of independent action and can in no circumstances consent to live in a world governed by intrigue and force. We believe that our own desire for a new international order under which reason and justice and the common interests of mankind shall prevail is the desire of enlightened men everywhere. Without that new order the world will be without peace and human life will lack tolerable conditions of existence and development. Having set our hand to the task of achieving it, we shall not turn back.

I hope that it is not necessary for me to add that no word of what I have said is intended as a threat. That is not the temper of our people. I have spoken thus only that the whole world may know the true spirit of America; that men everywhere may know that our passion for justice and for self-government is no mere passion of words but a passion which, once set in action, must be satisfied. The power of the United States is a menace to no nation or people. It will never be used in aggression or for the aggrandizement of any selfish interest of our own. It springs out of freedom and is for the service of freedom.

Where live stock is a factor on the farm, make every field hog-tight and sheep-tight; have thoroughly good permanent pastures; grow leguminous crops; build a silo; and keep only pure-bred males. These five things are absolutely essential in the economical production of live stock. Of course, this program calls for some labor and expense, but the permanent condition of prosperity in the sections devoted to live stock production is proof of the good profit derived therefrom.

HARVEST ICE.

Save Good Supply Now for Use Next Summer—Help to Conserve Coal and Ammonia.

Wherever ice is abundant the cost of harvesting and storing is usually very small. Farmers and others who have access to a supply of natural ice are urged by the United States Department of Agriculture to conserve it, not only because it will furnish an economical supply for summer use, but every ton of ice saved means a certain amount of ammonia and coal saved. Ammonia, the supply of which is limited, is essential in the manufacture of fertilizers and explosives. American ice factories and refrigerating plants, according to figures of the United States Fuel Administration, use annually 15,000,000 tons of coal and large quantities of ammonia.

Although a well-constructed ice house conserves ice with little loss, specialists of the department say that such a building is not necessary in order to store ice economically. In many instances ice may be successfully stored in the cellar under the house or barn, or in the corner of some unused building on the farm, such as a woodshed, corncrib, or barn. Where ice is cheap and building material high, ice can be stored in roughly constructed bins, but in such case it is necessary to make due allowances for shrinkage, which sometimes amounts to 20 to 30 per cent and more. In investigations made by the department, the average cost of storing ice under ordinary conditions amounted to about $1 a ton. In some instances, the original cost of the ice and packing amounted to $2 a ton, but these were exceptional conditions where the storage house was a long distance from the source of the ice supply.

Harvesting Ice.

Where comparatively small quantities of ice are to be harvested little equipment is necessary. Two saws, two ice tongs, two ice hooks, and a pointed bar will be sufficient. In cutting the ice, it is advisable to cut square or oblong cakes about 2 feet square. Mark the ice with a long plank or straightedge, which will guide the man who does the sawing. After the ice cakes are broken apart, two men with ice tongs can pull the pieces from the water and load them on a wagon or sled with little difficulty.

The walls of the house or room in which the ice is to be stored should be airtight, and an inner and outer wall which allows for an air space is preferred to a single wall. A good waterproof insulating paper should line the walls.

Good Insulation Necessary.

The function of an ice house is to prevent the outside heat from passing into the interior and melting the ice. This is partly accomplished by the air space of a double-walled house. Further insulation is secured by the use of sawdust, shavings, or other such effective insulators.

Provision should be made for thorough drainage. The floor of the house or room should be made of coal cinders or gravel, which provides this drainage. Sometimes it is necessary to install a drain tile for this purpose. In this case, the tile should be properly trapped to prevent warm air from entering the room. Ventilation should also be provided. Place a ventilator in the highest part of the roof, which will allow the warm, moisture-laden air to escape.

Storing the Ice.

Before placing the ice in the storage house or room, cover the floor with 8 or 10 inches of sawdust or other insulating material. Place a layer of ice on this in a solid mass, but leave a space of about 12 inches around the walls for insulation. Pack the sawdust or shavings in this space tightly. Put more ice on the first layer and continue until the house is filled and cover the entire surface with about a foot of insulating material.

HOME-FILTERED PEANUT OIL.

Simple Method of Refining Crude Product for Use in Cooking.

Crude peanut oil, filtered through a piece of filter paper (the kind sold by drug stores), proved so suitable for use in cooking that a Georgia woman to whom the method was suggested by the United States Department of Agriculture now filters her own oil and uses it in nearly all her cooking.

Filter-Paper Method Successful.

The Georgia woman, wife of an oil miller, had been paying her grocer nearly $2 a gallon for cooking oil, while her husband sold his unrefined oil to a refinery for about $1.20 a gallon. She sent a small sample of the oil to the Bureau of Chemistry of the department with the request that, if possible, she be told of a method by which it could be made suitable for household use. The filter-paper method was suggested, and its success was told in a letter which said:

"The sample that you returned, also that which I have filtered myself, has surpassed my best expectations and I am now using it in all cooking except biscuit. My husband is delighted over what so simple a filter does for the oil and has same on exhibition in his office."

Local Market for Crude Oil.

The simple method of refining is regarded as important because it illustrates the ease with which a local market for cold-pressed peanut oil can be developed by mill operators. Specialists of the department for several years have been urging peanut-oil crushers to make at least a part of their oil from shelled peanuts, pressing them cold. The specialists warn, however, that not all crude peanut oil will be entirely satisfactory when simply filtered, because some of it is made from stock that contains too many rancid nuts. In some mills where the whole nuts are pressed, the field dirt is not entirely removed from the shells and often pieces of vines and trash are not entirely taken out, and when these are cooked and pressed with the peanuts the oil will not have a sweet flavor.

But if the mills will press sound stock, preferably after removing all or nearly all the shells, and with little or no cooking, and then filter the oil as soon as possible after it comes from the press, the specialists say they can supply all the salad and cooking oil needed in their communities and in time build up considerable demand for the home-filtered product.

FEEDING SUCKLING PIGS.

When the pigs are about 3 weeks old, sometimes less, they will begin to nose around for something to eat. If they are going to do as they should this something must be supplied. One of the best feeds at this particular time is shelled corn. It should be in a self-feeder in a pen where the pigs can go to it and will not be bothered by any of the rest of the hogs. This can be arranged by a creep just large enough to admit the pigs handily. Don't forget that these little fellows grow quite rapidly and from time to time the creep must be made larger. After the pigs are 4 or 5 weeks old, especially if they do not have good grass pasture, the addition of some shorts, tankage, or oil meal is advisable. Nothing would be better, however, than skimmed milk. The self-feeder in which is kept corn and other feeds should be maintained right along up until weaning time, and after that if the pig is intended for market purposes. Pigs to be used for breeding purposes may be kept on a self-feeder all the time with splendid results, but in some cases they get too fat and logy and do not take the proper exercise. The most profitable pig is the one that never quits growing from farrowing time until he is driven over the scales.

The dual-purpose cattle are popular with the small farmer who keeps but a few cattle and must depend on them to produce all the milk and butter needed for the family and, at the same time, raise calves or steers which will sell readily for slaughtering purposes. They have not been popular with the ranchman or farmer who raises large numbers of cattle.

TO BALANCE RATIONS.

Publication Gives Prepared Tables, Which Simplify Process of Mixing Feeds Wisely.

Economy in feeding live stock, even in the face of unprecedented feed crops, was never of greater importance than to-day, in the opinion of specialists of the United States Department of Agriculture. Not only as a conservation measure but also to insure the quickest and most efficient production of meat is the wise selection of feeds and mixing of rations of such importance now. That is the reason specialists of the department have prepared for feeders a simple and workable method of calculating well-balanced rations. The method is described in detail in Bulletin 637 of the department, "A Method of Calculating Balanced Rations."

Simple Problem in Arithmetic.

To reduce the problems involved in selection of feeds on the basis of their nutritive values—which are measured in terms of protein, carbohydrate, fat, and so on—in order to make them easy to apply in everyday farm feeding has not been simple. Yet it is believed that the new method will greatly aid any farmer who has a fundamental knowledge of feed values properly to mix farm rations. Balancing a ration by the directions given is a simple matter of multiplication and division. Carefully prepared tables, which are accompanied by the necessary directions for using, show the excess protein per pound for different protein feeds when used in rations of various nutritive ratios, and the protein deficiency per pound of various carbohydrate feeds as compared with rations of specified nutritive ratios. By the use of these tables and others which show cost values, the feeder may determine by fixed rule the most economical proportion in which feeds may be mixed to give a ration of a desired nutritive value.

Factors Affecting Feed Value.

It is explained that the protein, carbohydrate, and fat contents of a feedstuff are not the only factors affecting its feed value. Proteins differ in their nutritive qualities, while some substances not included in the classes mentioned are necessary to the proper maintenance of the bodily functions. The palatability and succulence of a feed has much to do with its value as a feed. Many feedstuffs have physiological effects entirely apart from their nutritive qualities. A ration may be perfectly balanced from the standpoint of relative content of protein and energy producers, and yet be quite impracticable, the specialists point out, because it is too bulky or too concentrated. Consideration of a feedstuff or a ration based only on chemical composition, therefore, is to be taken merely as a guide, it is explained, to be followed in the light of all the knowledge obtainable about animal nutrition.

Price Not a Reliable Guide.

The selling price of a feed is not a reliable guide to its relative feeding value. The carbohydrate feeds—corn, oats, barley, kafir, and various others—and the protein feeds—cottonseed meal, tankage, and brewers' grains—are found on the market at various prices. The feeder desires to know, with certain given prices, which is the cheapest feed to buy—the true value of a bushel of oats, rye, or barley for feed when corn is worth 80 cents a bushel. He wishes to know the value of a ton of brewers' grains, linseed meal, or bran when cottonseed meal is worth $30 a ton and corn $1 a bushel. By the use of the tables presented in the bulletin, which show comparative costs based on nutritive values, these questions can be answered.

RAISE MORE TURKEYS.

Especially Suited to Grain and Stock Farms—Feed Bill Is Small.

In the present campaign of the United States Department of Agriculture to increase the production of poultry upon the farm the turkey raiser is particularly well able to respond. The turkey is a farm bird, first and last, and is especially suited to the grain and stock farms, where there is ample ranging ground abounding in such turkey food as grasshoppers and other insects, weed seeds, waste grain, such as is left in the fields after harvest, and nuts of such varieties as beechnuts, chestnuts, pecans, pine nuts, and acorns. On such a farm the present prices of grain affect the turkey raiser but little, for, with the exception of what is used at fattening time, the feed consumed is largely of such a kind as would otherwise be wasted.

Most Farms Adapted to Turkey Raising.

With but little additional outlay to the farmer, many more turkeys could and should be raised. The small number of turkeys per farm in the United States is surprising. According to the census of 1910, which is the latest census that has been taken, only 13.7 per cent of the total number of farms reported any turkeys at all, and on these farms reporting turkeys an average of but slightly over 4 breeding turkeys was found per farm. There are some farms which, by the nature of the crops grown on them or because of unfavorable surroundings, are not adapted to turkey raising, but most farms are adapted to turkey raising and could easily handle a breeding flock of from 10 to 15 hen turkeys and a tom, raising from 75 to 150 turkeys each year at a good profit.

Bring Good Prices.

Good prices were paid to the turkey raiser during the past marketing season. On December 15, 1917, the average price per pound, live weight, paid to the farmer was 30.5 cents in New York State, 23.7 cents in Illinois, 25 cents in Georgia, 19.3 cents in Texas, and 27.1 cents in California. The average price throughout the United States was 23 cents.

Farmers' Bulletin 791, "Turkey Raising," describes the most successful methods of breeding, feeding, and management. This bulletin may be obtained free upon application to the United States Department of Agriculture, Washington, D. C.

DRAIN WATER-LOGGED LANDS.

Better Suited to Quick Increase of Crop Areas Than New Projects.

In most of the older irrigated valleys of the West there are large areas of waterlogged and practically useless lands which were formerly highly productive. For a number of reasons these lands are more suited to the quick increase of cropped areas than are new projects, either irrigation or dry farming. Some of these reasons, the drainage specialists of the United States Department of Agriculture state, are:

1. The transportation facilities, both highway and railroad, are provided in the older sections.
2. The lands are largely held by the men who did farm them and would do so again if they were drained.
3. The cost of drainage is usually much smaller than the cost of putting water on new land.
4. There is no danger of the loss of crops by drought, whereas that is an ever-present danger in those areas where the greatest expansion in dry farming is possible.
5. Except in the case of badly alkalied lands, less time will be required for getting the land to the point of maximum productiveness.

Thus it would appear that an impetus should be given to the drainage of irrigated lands at this time when a large increase in our production of crops is essential to the successful prosecution of the war.

Every encouragement should be given to this work, especially where large districts are being formed, as the work may be done more economically over large areas.

FARM PRICES.

Comparison of the Averages for Principal Crops for the Years 1915 and 1917.

The weighted average price of principal crops at the farm for 1915 was about the same as for 1914, or only 4 per cent greater, but in 1916 the gain was 47 per cent over 1915, and in 1917 it was 43 per cent over 1916, while in 1917 the gain over 1915, two years previous, was 110 per cent. The prices taken are for December.

Field Crops.

This two-year gain of 110 per cent is exceeded most of all by the kafirs, for which the increase of price at the farm was 258 per cent. Next below in order are broom corn with 220 per cent, hops with 189 per cent, tobacco with 174 per cent, and cotton lint with 152 per cent. Other cereals now appear, and corn, the greatest of the cereals, had a gain of 123 per cent in price at the farm, barley 120 per cent, and wheat 119 per cent.

Below the average advance of 110 per cent in price in two years, the scale descends to 109 per cent each for cotton seed and rice, 106 per cent for dry edible beans, 103 per cent for buckwheat, and 102 per cent for wild hay. Every one of the crops so far mentioned more than doubled in price in two years; corn, barley, and wheat more than doubled by one-fifth.

Five crops, none of which is of small importance, gained in price in the two years from 77 to 99 per cent—rye, oats, potatoes, sweet potatoes, and apples. Seven crops gained from 55 to 75 per cent, and these are cabbage, onions, flaxseed, peaches, peanuts, tame hay, and cranberries, the hay crop, of course, being of high importance. Gains of 29 to 44 per cent in price were made by hemp, clover seed, sugar cane, peas, and sugar beets, and for oranges the gain was only 9 per cent.

Animal Products.

The price gains of animal products at the farm during the two years are lower in general than the crop-price gains in general, and lower than the price gains of the animal feeds. Dairy products gained in price 32 per cent, and the range is from 29 per cent each for butter fat and cream sold to 36 per cent for butter. Eggs gained 55 and fowls raised 40 per cent, the average being 49 per cent. The gain for swine sold and slaughtered was 92 per cent, calves 91 per cent, sheep 72 per cent, and cattle other than calves 31 per cent, the average for the food animals being 63 per cent. The work animals sold have places lower in the scale; mules gained 30 per cent in price and for horses the gain was 1 per cent. Wool gained 107 per cent.

The gain of meat animals sold and slaughtered in average price was 63 per cent, and of poultry products, 49 per cent.

FIRE MENACE IN STOVES.

They Threaten Danger Unless Properly Installed and Used.

Don't overwork a small stove.

If a stove is too small for the space it is expected to heat, says a United States Department of Agriculture bulletin on fire prevention, it is liable to be overheated or filled so full of fuel that fire will fall out on the floor when the door is opened. The pipe also is liable to be overheated and the resultant danger is cited as a great source of farm blazes.

Stoves should not be placed close to papered walls or woodwork unless proper protection is provided. The floor near stoves or fireplaces also should be covered with some noninflammable material. Screens, to prevent coals dropping on the floor, should be placed. The door leading to the fire box on a stove should never be left open to check the draft, as the small explosions constantly occuring in the fire are very apt to throw out live coals and start a fire. Open fireplaces should not be used unless provided with effective screens.

Chimneys should be cleaned regularly to remove soot and any other inflammable material. This is best accomplished by means of pieces of metal (such as scrap tin), limbs of an evergreen tree, or a bundle of brush attached to a rope, chain, or wire and worked up and down in the chimney from the top.

INCREASE SUGAR SUPPLY.

Maple Trees, Bees, Sugar Beets, Sweet Sorghum, and Cull Apples Furnish Sweets.

Sugars and sirups can be produced on the farms and in villages by the use of ordinary kitchen equipment to help make up the average of 81 pounds, the estimated sugar for each person in the United States last year. A few sugar maple trees, well-kept colonies of bees, a hundred feet of sugar beets raised in the garden, or a small patch of sweet sorghum, and cull or other surplus apples which might go to waste unless made into apple sirup may each be made to contribute to our sugar supply.

The present limited sugar supply can be increased if many more families, in regions where the sugar maple grows, would each make maple sirup or sugar from ten or more maple trees. Ten trees, under ordinary conditions, can be expected to yield about 4 gallons of sirup or 30 pounds of sugar.

How to Make Maple Sugar.

Maple sugar making is an art the pioneer settlers of America learned from the Indians, and for years it has been a home and farm industry. The process is not so complicated that anyone who has the opportunity need hesitate to try it. Find a sugar maple tree 10 or more inches in diameter; bore a hole three-eighths of an inch or slightly more in diameter; insert a metal spout or one made by punching the pith from a section of elder; set a bucket under it that the sap may collect; boil this down in a kettle or shallow pan on a kitchen stove to the proper density for maple sirup. If sugar is preferred, boil it down further until it is quite thick, taking care that it does not burn, and let it crystallize.

"Sugar weather" often starts by the middle of February in the southern part of the sugar-maple region. The first sap is sweetest. There is no time to be lost in talking; get ready to take advantage of the first warm sunny days. "Old timers" say the outlook is good for a good sugar season.

The Office of Sugar Investigations of the United States Department of Agriculture upon application will send instructions for making sirups and sugars at home.

ADULTERATION OF CANNED GOODS.

Immediate action against shippers of canned sauerkraut and other canned foods which are adulterated with excessive brine or liquid will be taken by the United States Department of Agriculture. Certain packers of canned sauerkraut are putting on the market a product containing an excessive amount of brine for which the consumer pays sauerkraut prices, according to a statement from the Bureau of Chemistry. The interstate shipment of canned sauerkraut of this quality is regarded as a violation of the Federal Food and Drugs Act, a fact well known to the canning trade, the statement says. Shipment of any canned food containing excessive liquid likewise is regarded as a violation of the law. Canners generally recognize this fact, the statement adds, and it is seldom necessary to make objection to canned goods on that account.

The department has announced on numerous occasions that in packing foods the cans should be as full of the product as is practical for packing and processing and should contain only sufficient liquid to fill the vacant spaces in the can and cover the food. Foods packed in excessive liquid not only are a cheat to the consumer and a violation of the Food and Drugs Act, but they cause an improper utilization of tin cans as well as of valuable space in freight cars and other common carriers.

Don't keep a male bird unless you want fertile eggs. Hens lay just as well without a male.

WINTER GRAZING PAYS.

Results of Three Years' Experiments Conducted on Farm in Mountains of North Carolina.

In experiments covering three years on a farm in the western part of North Carolina winter grazing proved to be the cheapest and most satisfactory method of wintering stock cattle and produced substantial gains each year. The winter-grazed cattle made the largest total gain for the year and at less cost per head than any of the steers wintered in barns.

Descriptions and results of the experiments are given in a bulletin recently issued by the United States Department of Agriculture. The experiments were conducted by the Bureau of Animal Industry of the United States Department of Agriculture, in cooperation with the North Carolina Agricultural Experiment Station. The farm, being located in the western part of North Carolina, which is extremely mountainous and rough and presents a problem of peculiar importance to the farmer or cattle grower, is said to typify conditions to be met in a number of surrounding States. The area available for the growing of crops for winter maintenance in this section is restricted because of the mountainous condition, and the results of the experiments are considered of unusual importance to stock growers in similar locations.

Winter-Grazed Cattle Make Larger Profit.

The winter-grazed cattle made a larger average profit than any of the other lots of cattle in the experiments. Not including manure, the total profit was $22.36 per head. The winter-grazed cattle cost the least per head for feed, both winter and summer, this being $10.80.

Silage Found to Be Valuable.

Results of the three years' work show that steers which have been fed silage heavily during the winter make practically as good gains the following summer on pasture as steers wintered solely on dry feeds. The total average gain, winter and summer, of the silage-fed steers was 319 pounds, while the dry-fed steers made a total average gain of 329 pounds per head. Considering that the dry-fed cattle were somewhat better in quality, there is not enough difference in the gain to show that silage-wintered cattle do not thrive well the following summer.

Year-Round Pasture Most Profitable.

The results show conclusively the value of winter pasture when combined with summer pasture. The total average gain from fall to fall on these cattle was 350 pounds, which was made at a cost of $0.031 per pound. The winter-grazed cattle did well on summer grass and on the average were better cattle when finished in the fall than those wintered in the barns.

The next most economical showing was made by the cattle wintered on silage, stover, and hay, followed by grass in summer. The average cost per pound gain was $0.039 for the total gain made from fall to fall. This shows the value of silage in wintering stocker cattle.

The dry-wintered cattle which were finished on grass alone the next summer made an average gain of 344 pounds per steer at an average cost of $0.048 per pound, which was practically 1 cent per pound more for the total gains made than the silage-wintered cattle.

The cattle wintered on silage, corn stover, and hay and finished on grass and cake made an average total gain from fall to fall of 328 pounds at a cost of $0.065 per pound, whereas the cattle wintered on the same ration but finished on grass alone made their gains at a cost of $0.038 per pound. This shows that the silage and grass combination during winter and summer, respectively, is the more satisfactory, considering the cost of the gains.

Prevailing Method Not Economical.

The steers wintered on a dry ration of ear corn, corn stover, and hay and finished during the summer on grass and cottonseed cake made a total gain of 314 pounds from fall to fall at an average cost of $0.074 per pound. This was the most expensive gain produced. It is interesting to note in this connection that this is the common method of wintering stock cattle in the mountains of North Carolina and of surrounding States.

Considering the combination where the cattle were dry wintered on ear corn, corn stover, and hay, and finished on grass alone, the average cost per pound for the total gain made from fall to fall was $0.048. The difference between the ration fed in this case and that presented in the foregoing paragraph was the elimination of the cottonseed cake during the summer, which reduced the cost per pound of gain from $0.074 to $0.048. These figures show that the combination of dry wintering with grass during the summer produced the least economical gains from fall to fall. The important conclusion to be drawn from these figures is that, where winter pasture can not be provided, cattle wintered on corn silage with dry roughage and finished on grass make the cheapest gains.

UTAH YOUTHS BUSY WITH PIGS.

This is what the boys' and girls' clubs and the workers in charge did in Utah last year. Thirteen separate projects were undertaken. One thousand three hundred and sixty-seven clubs were organized. One thousand two hundred and ninety-six clubs began work with a total enrollment of 36,718. Thirteen per cent of the leaders' time was spent in the office of the agricultural college and 87 per cent in actual field work with local leaders and the boys and girls. The State club leaders gave 65 canning demonstrations with a total attendance of 3,970. Fifty-six field exhibits and 52 cluo fairs, festivals, and exhibits were held. The club leaders met and gave instructions directly to 19,702 boys and girls during the year. There was a total attendance at demonstrations conducted by the State club leaders of 14,485. The State leaders arranged for the purchase, financing, and distribution of 10 car loads of pigs and brood sows to members of pig clubs for every section of the State, with the result that pure-bred hogs are now scattered throughout the farms of the State as a permanent industry. Aside from this, club members have increased their own profits and made a definite contribution to the war program of thousands of pounds of pork.

MARKET FOR RABBITS.

There are millions of rabbits in the West and Southwest that could be marketed in large cities, according to reports received by the Bureau of Markets, United States Department of Agriculture. Efforts are being made by the Department of Agriculture and by individuals in this territory to interest dealers throughout the country in the possibilities of handling rabbits from Texas, New Mexico, Oklahoma, Arizona, Nevada, Kansas, and other Western States.

Reports from 10 large cities indicate a good market demand for cottontail and jack rabbits, with wholesale prices ranging from $2 to $5 a dozen for cottontails and from $1 to $6 a dozen for jack rabbits, depending upon size and quality and distance of market from supply. The increased demand for rabbits this winter in some cities is due, say dealers, to meatless days and the high prices of meats and poultry.

In examining a tract of land for alfalfa frequent borings should be made with a soil auger to determine the character of the soil and subsoil as well as the drainage conditions. This instrument will usually be of greater value in determining the adaptability of a particular tract to alfalfa than a chemical analysis of the soil. A common 1¼-inch auger with the shank lengthened and a suitable crossbar for a handle is practical for this use.

Back of every worker must be an efficient home.

GRASS ROOTS AS FEED.

Can Be Utilized by Stockmen in Western Texas Where Drought Caused Feed Shortage.

One of the greatest immediate needs of western Texas, the section which suffered from drought last season, is feed for live stock. There is a large area in Johnson grass in this locality, the roots of which are being utilized for stock feed by some of the stockmen in that locality. The United States Department of Agriculture states that the root stalks of Johnson grass are eagerly eaten by cattle and other live stock, and many farmers have at times utilized this fact to help clear their land of Johnson grass. When the grass is plowed so that the roots are near the surface the animals will eat all that they can easily obtain.

Let Stock Follow the Plow.

Numerous articles, says a specialist of the department, are found in which plowing in winter is suggested as a method of combating Johnson grass, and spring plowing at least every third year as a method of improving Johnson-grass meadows. In cases where the roots prove to be a profitable stock feed, they could no doubt be made available by the same plowing which was intended either to kill the grass or to improve the meadow. In the latter case, it is not likely that the stock would rid the land of the roots to such an extent that the stand would be injured. There is no question, he says, but that cattle, sheep, and horses would do well on these roots and gather them up after the plow. Of course, a supply of hay is necessary for feeding during wet weather and at other times when plowing can not be done.

Texas Cattleman's Experience.

The experience of a Texas stock raiser, who recently wrote to the department telling of his success in utilizing Johnson grass roots in feeding his large herd, is of unusual interest at the present time. "The value of these roots," he writes, "is not a matter of doubt—I carried through some six or seven hundred head of stock on my ranch last winter on these roots with practically nothing else. Now I have five or six hundred head on the same sort of pasture and they are doing splendidly. An ordinary turning plow or single-disk plow run for one-half day will supply four or five hundred head in good grass land. Of course, the plow must be run daily. The cattlemen throughout this section of the country seem to be unacquainted with the value of these roots for feed. My experience in plowing the grass leads me to believe that the meadow is really benefited. The cattle do not clear the ground of roots to the extent that the stand will be affected for the next season. This sort of pasture is equally good for cattle, horses, and hogs—I have never tried sheep or goats, but probably they would do well on it also."

There are doubtless many parts of Texas where there is a large reserve of stock feed in the ground in the shape of Johnson grass root stalks which can well be utilized to help in the present emergency, say specialists of the department.

KEEP THE ICE BOX CLEAN.

Thorough Cleaning at Least Once a Week Is Necessary.

"An ice box which has an unpleasant odor is indicative of poor housekeeping," says a statement issued by the United States Department of Agriculture. "Any food dropped or spilled from dishes placed in the refrigerator," continues the statement, "should immediately be removed and the soiled spot cleaned. Once a week at least the ice box should be emptied and thoroughly cleaned with warm water containing soap or preferably washing soda and household ammonia at the rate of two tablespoonfuls to a gallon of water.

Clean Drainpipe Carefully.

"The drainpipe leading from the ice compartment should not be forgotten. It may be cleaned most easily with a brush having a long wire handle or a swab may be made by winding a cloth on a round stick small enough to pass through the pipe. Some ice boxes are constructed so that the drainpipe may be removed for washing. After thorough cleaning, the interior of the ice box, including the drainpipe, should be scalded with plenty of boiling water and then rinsed in cold water. The refrigerator should then be dried and aired before putting in the ice and food.

"Here are some suggestions for preventing odors in ice boxes:

"(1) Keep refrigerator clean; (2) keep milk, butter, and eggs covered, to prevent absorption of foreign odors; (3) put foods with strong odors, like fish, into closed receptacles; (4) cool all cooked foods to room temperature before putting them in the refrigerator; (5) don't keep onions and bananas in the ice box."

LEARN HOW TO THROW WATER.

Water buckets, always filled and ready in a strategic position, are the best fire protection a farmer can get for the money, says a bulletin on fire prevention issued by the United States Department of Agriculture.

But—

Do you know how to throw a bucketful of water to put out a fire?

A little practice in the art may be very useful, says the bulletin.

The knack of throwing a broad sheet of water in a semicircular sweep is easily learned, and is useful on a spreading fire on the floor.

Water dipped out with the hands or a dipper or a broom and sprinkled on the fire is often more effective than that thrown on the fire from a distance. The water should be applied to the base of the fire and not up in the flames and smoke.

SAVE THE HENS.

Every laying hen sold from the farms before the 1st of May means a loss of about 30 eggs to the food supply of the Nation. These eggs are valuable food, manufactured largely from insects, weeds and grass, garbage, and waste. The eggs, therefore, are almost wholly a net gain in human food. Moreover, the hen is just as good meat after she has laid these eggs as before.

Save the hens is the message that the United States Department of Agriculture is sending broadcast through press notices and poster and through its county agents, especially in the southern poultry-raising sections.

While the highly specialized farm represents the possibility of great profit, it also represents the possibility of heavy losses on account of the tremendous fluctuation in production, and consequently in prices, of the products of intensive farming. In the greater portion of the country the great mass of farmers must gain their livelihood from the ordinary field crops and the common types of live stock.

Fattening steers on grass and cottonseed cake is nearly always more profitable than grazing them without feed. The use of a small amount of corn in addition to the cottonseed cake has proved profitable.

This war is a test of nations even more than of their material resources and strength. The issue of it depends on the relative intelligence, moral qualities and attitude of the people engaged.—Secretary Houston.

Stale crackers can be used in the same way as stale bread and stale bread crumbs. They may be combined with other foods and used in place of flour in making many dishes.

HANDLING WORN SOILS.

Simple Method of Cultivation Triples Productivity of Poor Land—Experience of Virginia Farmer.

One of the greatest needs in order to increase the production of crops on worn soils in the Eastern States is the addition of a liberal suply of humus or vegetable matter to the soil. This need is being supplied by many enterprising farmers by growing legume crops and turning them under. That the farmers who have adopted this practice are being amply repaid is shown by the increased yields which they are able to secure.

Corn Yield Increases from 15 to 50 Bushels.

On one farm in Caroline County, Va., the regular practice had been to grow corn on the land one year in three and to allow each field to "rest" during the other two years. The "resting" process was to allow weeds and trash to grow up and thus accumulate sufficient fertility for another crop of corn. With this system of cropping the yield of corn ranged generally from 15 to 18 bushels.

The improvement of the soil on this farm began first by planting one of the poorest fields to cowpeas. The cowpeas were cut for hay and the stubble disked and seeded to crimson clover. The following spring the crimson clover crop was turned under and the field planted to corn. At the last working of the corn, crimson clover was again sown. The following spring the same process was repeated by turning under the crimson clover and planting corn again on the same land. This practice was continued for five years. The third year the yield of corn was about 40 bushels to the acre and the fifth year the crop made a yield of 50 bushels to the acre.

Grows Good Wheat Crop.

Up to the time of the change iu the cropping system, it had been the regular practice to apply 200 pounds of 16 per cent acid phosphate per acre to each crop grown. Under that system, however, crop yields could not be maintained. After the change in cropping system, the same amount of acid phosphate was applied each year to the corn crop. The only real change in method was to grow first a crop of cowpeas and after that to turn under a catch crop of crimson clover in preparation for the corn each year. The improvement in soil conditions is further evident from the fact that after the fifth consecutive corn crop, wheat was sown and a yield of 22 bushels per acre was harvested. While these yields are not extremely large, it was possible by simple methods and with comparatively small expense to increase the producing capacity of some very poor land to about three times what it had formerly been.

CIVIL SERVICE EXAMINATIONS.

Veterinarians.

To supply male veterinarians for vacancies in the United States Department of Agriculture, the United States Civil Service Commission will hold a competitive examination for veterinarians on March 6, 1918. The examination is open only to men, who must have reached their twenty-first but not their forty-first birthday on the date of examination.

The applicant must show that he has graduated from a veterinary college of recognized standing or that he is a senior student in such an institution and expects to graduate within six months from the date of the examination. Certification of senior students who attain eligibility will be withheld until they furnish evidence of actual graduation.

The questions may cover any subjects in the veterinary college course. The announcement states that the examination is to fill vacancies at $1,500 a year or at a higher or lower salary. Applicants should apply for Form 312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the secretary of the United States civil-service board nearest to them.

Lay Inspectors.

Men, even though they have had no previous experience in packing and slaughtering establishments, are eligible for examination for lay inspector, grade 1, Meat Inspection, United States Department of Agriculture, called for March 6, 1918. The examination is open only to men, who must have reached their twentieth but not their fortieth birthday on the date of examination. The duties of the position are to assist inspectors in slaughtering houses and packing establishments in connection with their duties as inspectors of meat and meat food products. The examination will consist of tests in spelling, arithmetic, letter writing, penmanship, copying and practical questions. The department hopes to secure men for vacancies paying $960 per annum, though the call states that vacancies at $840 a year or higher or lower may be filled. Applicants should apply at once for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the secretary of the United States civil-service board nearest to them.

HOW TO PRESERVE EGGS.

Use of Waterglass Solution Is One of the Best Methods—Limewater Is Also Good Preservative.

Surplus eggs, preserved in the spring, will supply the home with good eggs in the fall and winter, when eggs are hard to get and are high-priced.

Eggs to be preserved must be fresh, and should be placed in the preserving eontainer as soon as possible after they are laid. One of the best methods of preserving is by the use of waterglass, a pale yellow, odorless, sirupy liquid that can be bought by the quart or gallon from the druggist or poultry supply man. It should be diluted in the proportion of 1 part of waterglass to 9 parts of water which has been boiled and allowed to cool. Earthenware crocks or jars are the best containers, since their glazed surface prevents chemical action from the solution. The crocks or cans should be scalded and allowed to cool before they are used. A container holding 5 gallons will accommodate 15 dozen eggs and will require one quart of waterglass.

To Use Waterglass Solution.

Half fill the container with the waterglass solution and place the eggs in it. Eggs ean be added from day to day as they are obtained, making sure that the eggs are covered by about 2 inches of waterglass solution. Cover the container and place it in a cool place where it will not have to be moved. Look at it from time to time, and if there seems to be danger of too much evaporation, add sufficient cool boiled water to keep the eggs covered. Eggs removed from the solution should be rinsed in clean, cold water. Before they are boiled holes should be pricked in the large ends with a needle to prevent them from cracking.

Limewater Also Preservative.

Limewater also is satisfactory for preserving eggs and is slightly less expensive than waterglass. A solution is made by placing 2 or 3 pounds of unslaked lime in 5 gallons of water which has been boiled and allowed to cool, and allowing the mixture to stand until the lime settles and the liquid is clear. The eggs should be placed in a clean earthenware jar or other suitable vessel and covered to a depth of 2 inches with the liquid. Remove the eggs as desired, rinse in clean, cold water, and use immediately.

Chickens never wash, as many other birds do, but cleanse themselves of insects by wallowing in soil. For this reason every poultry house should be provided with a dust box.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., FEBRUARY 27, 1918. No. 30

GROW MORE SPRING WHEAT—INCREASE FOOD CROPS AND MEATS.

Agricultural Program for Year Reemphasizes the Necessity of Producing Large Supply of Foods and Feedstuffs to Feed America and the Allies—Amplifies Program of August, 1917.

The planting of an increased acreage to spring wheat and the production of an increased supply of other food products and of live stock, especially hogs, is recommended in its supplementary food-production program issued by the United States Department of Agriculture.

This program reemphasizes and amplifies the food-production program for 1918 issued by the department in August, 1917, and other suggestions made in the fall and the first of this year regarding increased pork production and increased production of foodstuffs in the South. Taken in connection with the recommendations previously made, it suggests in full the proposals which the department thinks it desirable to offer with a view to secure enough meat and dairy products, cereals, sugar, and other staple and perishable foods, wool, and cotton for the Nation, its armies, and the allies. It gives suggestions for the approaching spring operations, based upon the latest available information as to the condition of the fall-planted crops of winter wheat and rye and as to the number of meat and dairy animals reported for 1917. They represent the best thought of the specialists of the department who have had the benefit of advice from agricultural leaders throughout the country. The text of the supplementary program follows:

AGRICULTURAL PRODUCTION FOR 1918.

Notwithstanding an increased production of staple crops in the United States in 1917, there is need for more food. Taking into account our own needs, the needs of the nations associated with us in this war, and the needs of friendly neutral nations, our best efforts will be required to provide enough food in 1918.

The demand for larger quantities of food, though due in part to the constantly increasing population of this country, is due chiefly to the war. There is necessity of greatly increasing food exports to the allies.

The farmers of the United States made a generous and patriotic response to the appeals for increased production in 1917. In spite of the apprehension which existed when the United States entered the war as to the possibility of increasing, or even of maintaining, agricultural production, they planted the largest acreages in the history of the country, produced and harvested record crops of most products except wheat, and succeeded in increasing the number of live stock, including not only work animals, but milk and meat animals as well. Weather conditions during the year caused two serious setbacks. The winter wheat crop of a year ago suffered severely because of unfavorable weather, with the result that last spring the abandonment of the winter wheat acreage was the largest ever known in the country—about 12,000,000 acres. The corn crop also suffered an unprecedented loss because of weather conditions throughout the corn belt which resulted in late planting, slow growth, and damage by early frosts.

The achievements of the farmers and livestock men last year furnish cause for congratulation and encouragement, but not for complacency or let-up this year in efforts to better the production record and to conserve food. The necessity of again securing large yields from the farms and ranges this year already has been strikingly emphasized by the President in his message to the farmers of the country and is steadily being pointed out by the Department of Agriculture and other agencies through various channels, including especially the agricultural extension machinery of the department and the State agricultural colleges. It is clear that it would be economically wise and advantageous for the farmers of the Nation to put forth their best efforts during the coming season to equal, and, if possible, to exceed their record of last year.

In spite of the large production in many directions during 1917, the situation is not satisfactory. The available supply of wheat is inadequate. Owing to short crops in preceding years, the reserves of a number of important commodities have been greatly reduced. Whether the war continues or not, the demands on this country, because of the increasing population and the needs of Europe, will be great. They will continue to be great for a considerable period even after peace returns. An especially strong demand will be made on this country for meats and live stock. But the record of the farmers last year, made in the face of ob-

FARMERS MAY BE DEPENDED UPON.

The war has served to exhibit to the country at large, as the country never quite realized before, its dependence upon agriculture and the manifold problems which beset our primary industry. There is reason to believe therefore that during the coming year agriculture will have the active sympathy and cooperation of all citizens and classes who are in position to render aid. The farmers of the United States will not fail to do all that they can in this emergency and, with favorable seasons, they will produce enough to sustain the civil population, to keep our Army and Navy in full fighting vigor, and to supplement the depleted resources of the allies. Every facility that the Department of Agriculture can command to assist them will be freely placed at their disposal.

stacles, is ground for confidence on their part that, with equal application and organization, they can overcome the difficulties this year.

The Department of Agriculture has given careful consideration not only to the needs but to the lines along which effort should be put forth this spring. It has had the benefit of advice from agricultural leaders throughout the country. The following is a statement of conclusions concerning the agricultural situation and the planting needs. It is offered as a recommendation for those engaged in crop and animal production, especially for the many farmers who are in a position to readjust their agricultural program to accord with the national necessities.

The situation is such that chief emphasis should be given to the production of the great staple food products, with special stress on wheat and hogs, the leading war foods. It is believed that the necessary production can be secured through the use of the best-known farm methods, but it may be necessary to a small extent to sacrifice certain of the less important farm crops temporarily, in the interest of others which rank highest in importance as food for man. Above all, sound farm practice, including well-established crop rotations with legumes, should not be interfered with. This is in the interest chiefly of crops in future years.

Specifically the department recommends as follows:

Spring Wheat.

The acreage of spring wheat should be increased in order to make certain that we shall have an adequate supply of wheat for our own uses and to meet the needs of the allies.

While the area of winter wheat sown in 1917 was the largest on record, the condition of the crop, as reported on December 1, was the lowest ever recorded, indicating a probable production of only 540,000,000 bushels. Whether the actual production will be greater or less than the estimate will depend upon conditions prevailing between now and the time of harvest.

If there were planted to spring wheat in the United States this year an acreage equal to the sum of the record planting in each spring wheat State within the last 10 years, there would be sown approximately 23,300,000 acres. If there should be planted an acreage equal to the sum of the record planting for each State within the last five years, there would be sown approximately 21,000,000 acres. The record planting for any year was 20,381,000, in 1911. The acreage for 1917 was 18,511,000.

The Department of Agriculture has carefully studied all these records and other data in connection with the present war conditions and needs, and believes that it will be possible this year to secure an acreage in excess of the record acreage which was planted in 1911. It is believed that increased acreages can be secured in States and sections where spring wheat production is known to be reasonably promising, and that such increases can be made without upsetting farm plans. The total acreage will be greatly influenced by what is done in Minnesota, North Dakota, Montana, and Idaho, where the conditions have not been the most favorable, and where in some sections they have been decidedly unfavorable during the past two years. North Dakota's lowest acreage in the last five years was that of 1917—7,000,000; Minnesota's, 3,230,000 in 1917; Montana's, 390,000 in 1913; and Idaho's, 200,000 in 1913. North Dakota's record acreage in the last five years was 8,350,000 in 1915; Minnesota's, 4,150,000 in 1913; Montana's, 1,122,000 in 1917; and Idaho's, 375,000 in 1917. North Dakota's five year average (1912–1916) was 7,657,000; Minnesota's, 3,995,000; Montana's, 566,000; and Idaho's, 231,000. Montana's annual planting has shown increases during the last four years, as follows: 1914–15, 321,000; 1915–16, 185,000; 1916–17, 187,000. What these States can do this spring it is difficult to determine, and will be controlled by local conditions. Because of the difficulties which they have experienced, particularly during the past two years, a definite suggestion of acreages for these four States is not given in the accompanying table. However, the average acreage of each for five years (1912–1916) is included. These are great spring wheat producing States and they may be counted upon to do all they can. If it is possible for them to extend their acreages the total for the last column will be correspondingly greater.

The accompanying table (Table 1) shows the record planting in each State within the last 10 years, within the last 5 years, and the acreage planted in 1917, in all the States producing considerable quantities of spring wheat.

It is hoped that many farmers, especially in the northern part of the corn belt, will find it possible to plant five to ten acres additional in wheat. In some cases they will plant more. In a number of States in the eastern and central portion of the country where spring wheat has not been grown in recent years, the crop is now being reestablished and it is recommended that this movement be encouraged to a moderate extent, and possibly even up to the area that was profitably grown only a few years ago.

It is believed that to a small extent the acreage in oats, if necessary, could be reduced in the interest of wheat, even though this may mean somewhat less of oats to be fed to live stock, leaving the animals more dependent upon other grains and roughage. Likewise, a very small portion of the acreage which normally would be planted to corn in the northern part of the corn bolt might be sown to spring wheat. It is well known to good feeders of live stock that some adjustment can be made along these lines without serious, if any, detriment to their feeding operations.

If the acreage of spring wheat indicated for some of the States can not be planted, the acreage of barley, which is known to grow better in some localities, might be increased. The use of barley is increasing in this country and it is a welcome food in Europe.

TABLE 1.—*Spring wheat acreage suggested for 1918, compared with earlier years.*

State or Territory.	Largest acreage, 10 years, 1908-1917.		Largest acreage, 5 years, 1913-1917.		Acreage, 1917.	Acreage, suggested for 1918.[1]
	Year.	Acres.	Year.	Acres.		
Maine	1917	11,000	1917	11,000	11,000	20,000
Vermont	1917	3,000	1917	3,000	3,000	5,000
New York						40,000
Pennsylvania						10,000
Maryland						2,000
West Virginia						10,000
Ohio						50,000
Indiana						50,000
Illinois						100,000
Michigan						50,000
Wisconsin	1917	146,000	1917	146,000	146,000	500,000
Minnesota	1908	5,356,000	1913	4,150,000	3,230,000	[2] 3,955,000
Iowa	1911	360,000	1913	345,000	250,000	750,000
North Dakota	1911	9,150,000	1915	8,350,000	7,000,000	[2] 7,657,000
South Dakota	1911	3,700,000	1913	3,675,000	3,596,000	3,596,000
Nebraska	1917	400,000	1917	400,000	400,000	700,000
Kansas	1908	200,000	1914	60,000	44,000	50,000
Montana	1917	1,122,000	1917	1,122,000	1,122,000	[2] 566,000
Wyoming	1917	123,000	1917	123,000	123,000	175,000
Colorado	1908	293,000	1917	264,000	264,000	325,000
New Mexico	1917	69,000	1917	69,000	69,000	80,000
Arizona	1908	15,000				
Utah	1908	170,000	1917	90,000	90,000	125,000
Nevada	1917	37,000	1917	37,000	37,000	50,000
Idaho	1917	375,000	1917	375,000	375,000	[2] 231,000
Washington	1917	1,350,000	1917	1,350,000	1,350,000	1,700,000
Oregon	1917	401,000	1917	401,000	401,000	300,000
California						5,000
United States		23,281,000		20,971,000	18,511,000	[1] 21,142,000

[1] This should be interpreted in the light of the preceding text. [2] Five-year average.

The maximum production of wheat will be aided by a wider adoption of certain well-known practices. These include especially the thorough preparation of the seed bed, the selection of the best seed obtainable, and the treatment of seed where necessary to protect it against disease. To reduce losses in the far West resulting from dust explosions in threshing machines, specialists are being stationed at various points throughout that region to aid manufacturers and operators of these machines to apply the devices and methods which the department, in cooperation with certain State colleges, has found to be completely effective in preventing these fires. Similar work is under way to eliminate dust explosions in grain elevators and warehouses.

Hogs.

The number of hogs should be increased by at least 15 per cent during the year 1918.

This recommendation is made as a result of a very careful study of the pork situation and has been approved by the State cooperating agencies. The percentage increase recommended varies in the different States, as indicated in Table 2. It is expected that in the States not named in the table the supply of hogs will be maintained if not increased. The increase in the number of hogs in the Northwestern States should be large. In the New England States, where only about two hogs are kept per farm, the increase also should be great. Much work already has been done in this direction, but further intensive effort is needed to bring the program to a successful conclusion.

TABLE 2.—*Percentage increase in hogs in 1918 desired in a number of States.*

State.	Per cent.	State.	Per cent.
Missouri	50	Ohio	15
Alabama	30	Kentucky	15
Kansas	25	Tennessee	15
Iowa	25	South Carolina	15
Illinois	20	South Dakota	10
Indiana	20	Maryland	10
Nebraska	20	North Carolina	10
Arkansas	20	West Virginia	5
Mississippi	20	Georgia	5

Pork constitutes more than one-half of all the meat produced in the United States and it is the mainstay of the ration of the laboring man and the soldier. The need for increasing the supply of fats is particularly acute. Fats in all forms—dairy products, beef fats, vegetable oils, and pork fats—should be increased to meet the demands of this country and the allies. Animal fats can be increased more quickly by increasing the number of hogs than in any other manner.

The reported decrease in the number of hogs in the allied countries also has been very great, and it is expected that the decrease will continue at an accelerated rate. The urgent needs of the allies have resulted in an increase of our exports of pork products. Before the war (1910 to 1914) we exported on the average about 900,000,000 pounds of pork products yearly, of which about one-half was lard. For the year ending September 1, 1917, exports increased to 1,446,000,000 pounds. This increase consisted entirely of meat (largely bacon), the exports of lard remaining about the same.

Pork production will be increased economically by breeding for two litters a year; by saving through better care a larger number of the pigs farrowed; by growing pasture and forage crops; by using wastes, especially town and city garbage; by proper rations of concentrated feeds, by the use of self-feeders; by pasturing alfalfa and other legumes and other forage crops; by hogging down grain sorghums and corn; by finishing hogs to heavier weights up to about 275 pounds; and by preventive measures which will keep hogs free from cholera, tuberculosis, other diseases, and parasites.

Sugar.

Effort should be made to maintain the acreage of sugar cane and sugar beets and to increase these areas in so far as these crops are well established or are necessary to sound agricultural practice.

An extensive increase in 1918 will not be possible because of the time required to grow seed cane stock and because of the limited amount of beet seed available. However, there is enough beet seed to plant the usual acreage.

On the acreage planted the highest possible yield should be obtained. In both beet and cane fields a thorough preparation of the seed bed should be made. Beets should be thinned carefully to insure a uniform stand and cultivated intensively. Fields infested with pests should be avoided. Because the supply of both beet and cane seed is limited, every precaution should be taken to secure the largest acreage and the highest yield from the seed available. The by-products of both beet and cane sugar manufactured should be used to increase the production of meat and dairy products by feeding to live stock.

Satisfactory substitutes for sugar may be used to a much larger extent. These include sorghum, corn and cane sirup, maple sugar and sirup, and honey. The maple sirup and sugar production can and should be increased in those areas in which maple trees are growing in sufficient numbers to warrant the expenditure of the necessary time and labor. Maple sirup and sugar are produced in 19 States, the annual output exceeding 14,000,000 pounds of sugar and 4,000,000 gallons of sirup. These figures can be doubled. The production of sorghum sirup in 1917 exceeded that in 1916 by nearly 4,000,000 gallons. Sorghum sirup may be produced in nearly every State in the Union. An increased production of sorghum sirup will enable the public still further to conserve the sugar supply in most available form for transportation to our soldiers.

Sheep and Wool.

Effort should be made to increase the production of sheep and wool. Increase in farm flocks is recommended wherever conditions are favorable and the first cost of stocking is not too high.

The wool produced in this country furnishes only about 50 per cent of the amount used in peace times; the war demands have emphasized the seriousness of this domestic shortage. To equip 2,000,000 soldiers and clothe them for one year would require the entire quantity of wool grown annually in this country.

During recent years we have shorn about 35,000,000 fleeces annually, and the pulled wool taken from sheep and lambs slaughtered for meat brings the total clip up to the equivalent of about 40,000,000 fleeces. If all this wool were suitable for military use, it would supply only 2,000,000 men. The production of wool in the United States has remained practically stationary from 1914 to 1917, while imports increased 48 per cent and the estimated net supply increased only about 21 per cent.

That mutton and wool production in this country can be increased greatly admits of no doubt. This can be accomplished by developing sheep husbandry on farms, especially in the Eastern and Southern States. Steps should be taken in the East and South to do away with the sheep-killing dog menace by State or local action. Large results can be secured by improving methods of breeding and management on the range; by securing the restocking of improved farm lands with sheep; by the larger use of forage crops and pastures; by encouraging sheep and lamb clubs; by the elimination of parasites; by protection against losses from predatory animals; and by having lambs ready for market at from 70 to 80 pounds weight, thereby requiring a minimum of grain to finish them and making possible the maintenance of larger breeding flocks.

Dairy Products.

The supply of dairy products should be maintained to meet the needs of this country and to help supply the increasing demands of the allies.

Dairy products are essential to the well-being of the Nation, and the dairy cow produces more food with less feed than any other of our domestic animals. Before the war the United States received dairy products from about 20 foreign countries; now these supplies have been largely stopped and it has become necessary not only to replace them at home, but also to export large quantities.

In 1914, for instance, we imported approximately 64 million pounds more of dairy products than we exported, not including fresh milk and cream. In 1917 we exported 320 million pounds more than we imported.

The total amount of milk produced in this country in 1917 is estimated to be 84,611,350,000 pounds. Large losses occur, and the greatest is through the failure fully to utilize skimmed milk and buttermilk for human food. These products have all of the food value of the whole milk except the fat. A given quantity of them would produce seven times as much food value in the form of cottage cheese as they would produce in the form of meat if fed to live stock. The possibilities of increasing the supply of food by the fuller utilization of these by-products are enormous. In brief, there should be a better utilization of skimmed milk and buttermilk, both as food on the farm and through the market.

Better results in dairying may be secured by proper sanitation and care in producing and handling milk; by better care and utilization of pastures; by raising on the farm adequate supplies of roughage, particularly legumes and silage to take the place of grains so far as is practicable; by preserving for dairy purposes all the high-producing animals and eliminating those that are inefficient; by feeding according to production so as to secure the greatest yield of milk with the least quantity of feed, which necessitates a record of production of individual cows; by the full utilization in the community of good bulls throughout the entire period of their usefulness and to their full capacity; and by the prompt control of disease.

Poultry.

Poultry production should be increased greatly, especially in back yards and on farms where waste material is available and the purchase of expensive grains and other material is not required.

Increased poultry production may be attained most economically by early hatching; by confining mother hens at least 10 days after the chicks are hatched; by reducing losses on account of rats, weasels, and thieves, and from cold, damp conditions; by thorough sanitation; by discouraging the marketing of early hatched pullets as broilers; by eliminating nonproducing hens and keeping good layers through at least two laying seasons; and by the poultryman raising his own feed as far as possible.

Corn.

An acreage of corn approximately equal to that of 1917 should be planted, with possibly slight reductions in certain sections to free areas for spring wheat.

In 1917 the acreage of corn grown was the largest in the history of the country—119,755,000 acres, compared with 105,672,000 acres, the average for 1911–1915. The production in 1917 was 3,159,000,000 bushels, the greatest yield ever recorded; but a large part of the crop is soft, and the net feeding value is much less than appears from the mere statement of the quantity produced in terms of bushels. The crop during the period 1911–1915 averaged 2,754,000,000 bushels annually.

In regions where drought or frost injury has seriously reduced the supply of corn suitable for seed, the department will cooperate with State organizations to secure the necessary supplies of proper varieties, but every farmer should do his utmost without delay to secure the seed which he requires. The great losses resulting from early frosts in the autumn of 1917 and smaller losses in former years show the necessity of planting available seed of early maturing varieties in the States north of the Ohio and Missouri Rivers this spring and the selection and saving of an ample supply of fully matured seed of these varieties in the autumn of 1918.

While the importance of the corn crop could hardly be overstated, yet it must be remembered that it is necessary also to have a large wheat acreage. A corn acreage several per cent smaller than that of 1917, if necessary, could be planted this year and still be larger than the normal area devoted to the crop. This indicates that in the limited sections where spring wheat grows well there can be a reasonable reduction of corn acreage in the interest of wheat without endangering the corn yield.

Oats, Barley, Rice, Buckwheat, and Flaxseed.

The area in oats should be maintained, especially in regions and on soils which are not so well adapted to other grains, but with a small reduction to provide for increasing the wheat acreage. Barley production should be increased in regions where it grows best, especially in the northern edge of the corn belt and in sections north and west of the belt; and rice, buckwheat, and flaxseed production should be maintained and, if possible, increased.

Barley has a longer seeding period than other grains and can be used in the place of corn as an animal feed and as a partial substitute for wheat in bread making. Buckwheat can be planted later than many other crops on soils not so well adapted to other grains. Virgin lands should be used as far as possible for flaxseed production. The Nation needs approximately 28,000,000 bushels of flaxseed annually, while the production in 1917 was less than 9,000,000.

Grain Sorghums.

The production of grain sorghums (kafir, milo, feterita, etc.) should be increased greatly throughout the drier portion of the Plains region.

Kafirs are the most certain grain crops in this section and they can be made to supplement wheat as human food and to replace corn as animal food.

General Suggestions Regarding Grains.

The maximum production of grains will be secured by adopting certain well-known principles of management. These include thorough preparation of the soil; early seeding; use of manure; selecting the best seed obtainable; testing seed for germination to insure good stands; treatment of seed for various fungous diseases; proper cultivation of crops which are intertilled; utilizing, to the greatest extent practicable, machinery and horse labor; and elimination of losses in harvesting and storage.

To aid those areas which have suffered most from drought and frost the Department of Agriculture is helping farmers to find suitable seed. To reduce the losses from fungous diseases, especially smuts of wheat, barley, and oats, special Federal and State agents have been placed in the regions likely to suffer most heavily, to demonstrate methods of control and to encourage their general adoption.

Potatoes.

The normal acreage of Irish and sweet potatoes for 1918 should be maintained, notwithstanding the large crops in 1917.

This is especially true in view of the necessity of releasing more wheat for export. Potatoes, both Irish and sweet, are the most popular and most generally used of the perishable staple crops. The department, through its extension and publication activities, is encouraging their greater use, especially the use of the Irish potato as a partial substitute for wheat in bread making.

The yield per acre can be made more certain by greater attention to the selection of disease-free potatoes of good varieties, by treatment of seed potatoes immediately before planting, and by the use of sprays to prevent loss from blight.

Hay, Forage, and Pastures.

Wherever feasible the area devoted to hay, forage, and silage crops should be increased and these products should be used to a greater extent in place of grains and other concentrates.

It is especially recommended that the acreage of alfalfa, clover, cowpeas, soy beans, velvet beans, and other leguminous forage plants be maintained or increased. Particular attention is called to the fact that corn stover cut at the proper stage, properly protected against the weather, and judiciously fed, is fully equal to timothy hay in feeding value. In view of this fact, increased acreages of corn should be cut for fodder in localities where there is a possibility of utilizing the stover.

With a view to increasing their yield of forage, special attention should be given to pastures. The weeds should be kept cut, the pastures should be used only at the proper time, and they should be seeded in thin places, etc.

Large additions can be made to the feed available on the farm by sowing in corn, at the time of the last cultivation, such forage crops as rape, soy beans, and, in the South, by planting in the corn at the proper time peanuts, velvet beans, and the like.

In localities where straw must be shipped to be used advantageously it is advisable to bale the straw immediately after threshing. This prevents waste and preserves whatever feeding value the straw may possess.

In increasing the area of grain and intertilled crops, care should be taken not to decrease hay and pasture areas below the amount needed for the live stock to be kept on the farm.

Beef Animals.

The number of beef animals should be maintained and, in areas where this clearly is the best range and farm practice, the number should be increased.

The decline in the number of cattle on farms and ranges in the United States from the high point of 72,000,000 in 1907, reached its lowest point in 1914, with an estimated total of 56,000,000. Since that date a steady increase has been maintained, the supply on January 1, 1916, being about 62,000,000 and on January 1, 1918, more than 66,800,000, or nearly 5,000,000 more than in 1910. Since the outbreak of the European War and the consequent depletion of the European supply of cattle, the task of meeting the increasing demands for beef and beef products, to a large extent, has been put upon the people of the United States.

The exports of dressed beef and beef products have increased 177 per cent during the last three years. The shortage of beef abroad, like the shortage of other meat products, doubtless will be accentuated as the war progresses.

Beef production can be increased in the settled farm areas of the Nation and especially in the South. It can be increased everywhere by preventing the loss of flesh by calves during their first winter and keeping calves growing during this period so that beef animals may be marketed at earlier ages, thereby requiring the maintenance of fewer stocker cattle and making possible the maintenance of larger breeding herds; by using a larger proportion of bulls on the range to insure larger calf crops; by using good bulls only; by reducing the tick-infested areas as rapidly as possible; by eliminating as far as possible the losses from disease and predatory animals; by transferring animals from regions of scarcity of feed to those where there is an abundance of feed; by providing a more ample supply of winter feed and better shelter; and by utilizing all roughage produced, either as fodder, hay or silage, and supplementing these feeds with more nitrogenous concentrates and less grain.

Beans, Peas, and Peanuts.

The production of beans and peas should be increased in regions to which they are adapted, because of their high food value, keeping qualities, and availability for domestic or export trade. Soy beans and peanuts should be increased in order to supplement beans and peas as human food, as a source of much needed oil, and as animal feeds.

The production of beans last year in the six leading States increased from 10,715,000 bushels to 15,701,000 bushels, and peanuts from 35,324,500 bushels to 60,222,000 bushels. But these increases proved to be greatly needed, and there is every indication that large increases will be readily absorbed in 1918. The peanut is especially valuable because of the oil it contains, for which the need is great. In the South, especially, soy beans and peanut meal are proving very satisfactory as partial substitutes for wheat. Both soy beans and peanuts are of great value as forage crops.

Perishables.

(*a*) *Market gardens near large consuming centers should be increased so as to meet, as nearly as possible, the needs of the community, and in order to obviate the necessity of transporting such products from distant points.*

It is important to do all that is possible to relieve the strain upon transportation facilities.

(*b*) *The planting of home gardens, especially for family needs and for preserving food for future use, again should be emphasized.*

(*c*) *The commercial production of perishables generally should be increased above normal wherever it is reasonably clear that transportation and marketing facilities will be available.*

Last year the production of perishables is estimated to have been 50 per cent greater than normal. Notwithstanding the large output, the marketing difficulties were relatively less than in former years because of the effective efforts of the people throughout the country, assisted by Federal and State agencies, to conserve these products for future use by canning, preserving, pickling, and drying. The department again will actively assist in the conservation of perishables, as it did last summer, and will be able to render more effective assistance with its largely increased staff. It will cooperate with all State agencies, especially the State agricultural colleges, to bring about the planting of more war gardens, to see that they are maintained throughout the season, and to insure the prompt consumption or preservation for future use of all perishables produced in these gardens or otherwise. More effective assistance also will be rendered in the marketing of perishable products through the greatly extended daily market news service of the Bureau of Markets and the weekly reports of truck crop production prepared by the Bureau of Crop Estimates.

Cotton.

Having taken steps to provide food for its own people and feed for its live stock, which is urged as a matter of both public duty and self-protection, the South should plant as much cotton as can be well cultivated and harvested.

The best ways of increasing the cotton output include better preparation of the soil, utilizing such fertilizers as may be available, planting cotton after legumes, using the best seed of early maturing varieties, deferring planting until the ground is warmed up, using measures to hold the boll weevil in check, and prompt and thorough picking of the crop.

While emphasizing the need for an adequate cotton supply, the department again urges the great importance of developing diversified farming in the South. It is better farm economy, results in fuller utilization of labor, and, in the long run, will bring larger returns.

Farm Supplies, Equipment, and Labor.

FARM EQUIPMENT AND SUPPLIES.

That horse and power machinery should be used to supplement hand labor wherever practicable.

Farm machinery and implements should be protected from the weather and kept in repair and good working order at all times. Owing to existing difficulties in transportation, farmers should take early steps to secure their farm supplies, repair parts for farm machinery, and new equipment, so that they will have them on hand at the proper time.

LABOR.

In farming, as in other industries, there are labor difficulties to be overcome. The welfare not only of farmers themselves, but also of the Nation, depends upon the determination of the farmers, with the assistance of Federal and State agencies and other organizations, to surmount these difficulties. The department has stationed in nearly every State of the Union a farm labor specialist who will cooperate with the Department of Labor and with appropriate State agencies in dealing with the problem. These men will do everything in their power to enable the farmers of the Nation to secure the requisite supply of labor for their operations, especially during the planting and harvesting seasons. The most promising lines of approach in

dealing with the matter seem to be the following:

(1) A systematic survey of the farm labor situation in order to ascertain the needs of the farmers and to determine ways of meeting them. The department, through its agents stationed in various States and in cooperation with the Department of Labor and the State councils of defense and other State agencies, is now making such a survey.

(2) The promotion of fuller cooperation in the utilization of labor among farmers in the same community.

(3) The further development of agencies for assisting in the transfer of labor from sections where the seasonal pressure has passed to sections where additional help is urgently needed.

(4) Making available additional labor which heretofore has not been fully or regularly utilized in farming operations, including boys of high-school age who have had experience on the farm.

(5) The largest possible production and fullest use of labor-saving machinery.

The releasing of men for agricultural purposes, by replacing them with women in the lighter industrial tasks so far as possible, and by diverting labor from relatively nonessential enterprises, are matters which demand serious consideration.

It should be borne in mind that some of the disturbing factors of last year in the farm-labor situation have been eliminated, and therefore the problem in some respects may not be quite so acute this year. Naturally, the disturbances are much more violent immediately after a great shock has been given the industrial system. This Nation has been organized on a peace basis. When it entered the war it was necessary not only to create vast additional facilities and machinery, but also to provide on an enormous scale for the operation of the new establishments and of those previously existing. Many shipyards had to be expanded and others had to be created. Large cantonments had to be built, and built quickly. Furthermore, it was necessary to have an army, and this necessarily caused additional labor drains and dislocations. In the haste of the first draft, it was impossible to work out a satisfactory classification of labor with reference to the national needs.

The Army cantonments and many of the aviation fields and camps have now been completed and will not have to be duplicated. A part of the industrial expansion for war purposes also has been accomplished. The new regulations promulgated by the War Department provide a system of classification of the men subject to the draft which contemplates the placing of skilled farm labor engaged in necessary agricultural enterprises in class 2, assistant or associate managers of necessary agricultural enterprises in class 3, and heads of necessary agricultural enterprises in class 4. The Secretary of War has asked Congress for authority to furlough soldiers of the National Army, whenever the interests of the service or the national security and defense render it necessary or desirable, during harvest and planting time to enable them to assist in the agricultural production of the country. It is reasonable to suppose, in view of these facts, that some of the difficulties previously encountered will be removed or minimized. It must be recognized, however, that the situation will continue to be difficult and that a satisfactory solution will require the best thought of the Nation and the fullest and most complete cooperation of all agencies.

Prevention of Losses.

In these days, when the conservation of every product which contributes to our food supply means so much, every effort should be made to prevent losses in production, storage, and transportation. Billions of dollars are lost every year from such preventable causes as insects, plant and animal diseases, carelessness in breeding, predatory animals, rats, mice, ground squirrels, and other rodents. These losses are being held in check by present agencies and can be further greatly reduced or prevented at a cost which is insignificant when compared with the amount of damage done. Methods of controlling many of these harmful factors are now well established and should be more widely adopted. A large loss on the farms of the United States results from the improper care of manure and its careless and ineffective use. In these times of scarcity of fertilizing materials more attention than ever should be paid to the conserving of plant food from this source.

ANIMAL DISEASES AND PARASITES.

It has been estimated that diseases of animals, such as hog cholera, tuberculosis, contagious abortion, dourine, Texas or tick fever, and others, cause annual losses aggregating many millions. Many of these diseases, to a still greater extent, can be prevented or their ravages reduced considerably. The department has greatly extended its facilities for dealing with these matters and will assist farmers in every feasible way.

INSECTS AND PLANT DISEASES.

The annual losses from insects and plant diseases are enormous. It has been conservatively estimated that smuts of wheat alone cause losses aggregating $60,000,000 annually. The staff of specialists in the Department of Agriculture, as well as the staffs in the State institutions, has been increased, and, in cooperation with the forces in the various States, they will be able to render more effective assistance to farmers during the coming season than ever before.

PREDATORY ANIMALS AND RODENTS.

The losses from animals injurious to agriculture and to animal husbandry are enormous. Native rodents cause losses of grain, forage, and other agricultural products estimated at more than $150,000,000. House rats and mice levy a toll of $200,000,000 upon the Nation's food supply. On the western cattle ranges predatory animals alone cause losses of live stock amounting from $20,000,000 to $30,000,000 annually. Methods of eradication have been developed, especially in the case of rodents, which will make it possible to reduce the losses at a relatively small expense. The department will vigorously prosecute its activities in this field and will assist farmers in every feasible way, in cooperation with the extension forces of the States, to control or eliminate these pests.

Agencies for Bringing This Program Before the Farmer.

Recommendations made in this program for maintaining or increasing crop and live stock production will be brought to the attention of farmers in all sections of the United States through the organized forces of county agents and specialists in the Federal Department of Agriculture and the State agricultural colleges, experiment stations, and other State and local agencies. These agencies will urge these measures upon farmers through public meetings, personal interviews, correspondence, and publications.

Owing to the tremendous importance of maintaining and increasing farm production during the continuance of the war, the Department of Agriculture has strengthened its forces so that its organization and facilities may be available in the most effective manner and it will extend its cooperation with State and local agencies in assisting the farmers of the country in every possible way. As the season advances, specific recommendations will be made by the department with respect to each of the important crops and classes of live stock.

Farmers May Be Depended Upon.

The war has served to exhibit to the country at large, as the country never quite realized before, its dependence upon agriculture and the manifold problems which beset our primary industry. There is reason to believe therefore that during the coming year agriculture will have the active sympathy and cooperation of all citizens and classes who are in position to render aid. The farmers of the United States will not fail to do all that they can in this emergency and, with favorable seasons, they will produce enough to sustain the civil population, to keep our Army and Navy in full fighting vigor, and to supplement the depleted resources of the allies. Every facility that the Department of Agriculture can command to assist them will be freely placed at their disposal.

THE FOOD PRODUCTION OUTLOOK.

Accomplishment by Farmers in 1917 Furnishes Ground for Encouragement But Affords No Justification for Any Let-up in Efforts to Produce and Conserve Food.

Statement by David F. Houston, Secretary of Agriculture, Washington, D. C., Feb. 16, 1918.

FEBRUARY 16, 1918.

(*The Secretary of Agriculture to-day made the following statement bearing on the leading results of the planting and production activities in 1917. It furnishes ground for encouragement that the farmers of the Nation can again overcome difficulties and produce a large supply of foods and feedstuffs this year, but it does not afford justification for any let-up in production activities or in conservation efforts.*)

The production of food crops and of animals and animal products is always a matter of great interest to all the people of the Nation. At this particular time it is of especial interest and concern. Statistics regarding the acreages and yields of important food crops planted during the year 1917 have been available in the Department of Agriculture for some time and have been made public. The recent report of the Bureau of Crop Estimates on the number of live stock on farms and ranges, however, makes it possible now to exhibit a summary of the principal results of the farmers' operations for the year.

Naturally, when the Nation entered the war on April 6, 1917, there was much confusion and apprehension as to the possibility of increasing or even of maintaining agricultural production. There was special concern as to the sufficiency of the supply of labor that would be available for farming operations, and much apprehension was manifested over the disturbance of the supply as the result of industrial demands and the drafting or volunteering of men for service in the Army and Navy. As a matter of fact, there was no little disturbance and in some sections the situation was especially acute. There were other difficulties confronting the farmers, including those of securing fertilizer and machinery in sufficient quantities at a reasonable cost. Notwithstanding all the difficulties, however, the farmers, patriotically responding to the appeals to them and influenced by the prevailing prices, labored energetically to meet the needs of this Nation for food and also those of the friendly nations in Europe. They planted the largest acreages in the history of the country, produced and harvested record crops of most products except wheat, and succeeded in increasing the number of live stock, including not only work animals, but meat and milk animals.

The achievements of the farmers and livestock men furnish cause for congratulation and encouragement, but not for complacency or for any let-up this year in efforts to better the record and to conserve food. The necessity of again securing large yields from the farms and ranches this year has been strikingly emphasized by the President in his message to the farmers of the country and is steadily being pointed out by the Department of Agriculture and other agencies through various channels, including especially the extensive farm demonstration activities of the department and the State agricultural colleges. Specific suggestions are now under consideration for the spring campaign and will be made public in the near future. It is clear that it will be economically wise and advantageous for the farmers of the Nation to put forth their best efforts during the coming season to equal and, if possible, to exceed their record of last year. In spite of the large production in many directions during 1917, the situation is not satisfactory. The supply of wheat in this Nation and in the world is inadequate. Owing to short crops in preceding years, the reserves of a number of important commodities have been greatly reduced. Whether the war continues or not, the demand on this country, because of the increasing population and of the needs of Europe, will be great. They will continue to be great for a considerable period even after peace returns. There will be an especially strong demand made on this country for meats and live stock.

The record of farmers last year, made in the face of obstacles, is ground for confidence on their part that, with equal application and organization, they can overcome the difficulties this year. Unquestionably there will be difficulties to surmount—difficulties in respect to labor and in respect to fertilizers, both as to price and quantity. Prices of farm machinery also with other things have risen. In some respects, the farm-labor situation may not be quite so difficult as last year, although it will continue to be especially acute in certain sections of the country. The cantonments have been built and there will not be a renewal of urgent demands in many sections for labor for such work. The draft regulations provide for the deferred classification of skilled farm labor. The population of the country has increased somewhat within the past year. The Secretary of War has asked Congress for power to furlough soldiers of the National Army for agricultural service if necessary.

Bearing these matters in mind, it seems highly likely that the farmers, by exercising their talent for cooperation and organization, with such assistance as can be furnished by governmental and other agencies, will again be able to overcome the difficulties. The Departments of Agriculture and Labor are continuing to develop their organizations to assist farmers in securing the labor needed in their operations. They are especially planning to assist in the transfer of labor from community to community and from State to State.

Acreage of Leading Food Crops.

The farmers of the Nation planted during 1917 an acreage of 246,275,000 of the leading food crops (winter wheat, spring wheat, corn, oats, barley, rye, buckwheat, rice, Irish potatoes, and sweet potatoes), which was 23,038,000 acres (10 per cent) greater than the acreage in 1916, and 32,339,000 (15 per cent) greater than the average for the five years preceding the outbreak of the European war.

The details for the three periods are given in Table 1.

TABLE 1.—*Acreage of leading food crops, 1917, 1916, and average for five years preceding the outbreak of the European war.*

Crop.	1917	1916	Five-year average 1910-1914—prewar (normal) condition.
	Acres.	*Acres.*	*Acres.*
Winter wheat	42,170,000	40,534,000	35,724,000
Spring wheat	18,511,000	17,607,000	18,799,000
Corn	119,755,000	105,296,000	105,240,000
Oats	43,572,000	41,527,000	38,014,000
Barley	8,835,000	7,757,000	7,593,000
Rye	6,119,000	4,480,000	2,710,000
Buckwheat	1,005,000	828,000	826,000
Rice	964,000	869,000	733,000
Potatoes	4,390,000	3,565,000	3,683,000
Sweet potatoes	953,000	774,000	611,000
Total	246,275,000	223,237,000	213,936,000

Production of Leading Food Crops.

The farmers not only planted these acreages, but they harvested record crops of corn, oats, barley, buckwheat, and Irish and sweet potatoes. The total production

of these products and of spring wheat and rice was 5,771,928,000 bushels, or 1,204,659,000 bushels (26 per cent) more than in 1916, and 1,002,442,000 (21 per cent) more than the average for the five-year period (1910–1914). Winter wheat and rye are omitted from this comparison because the 1917 harvests of these crops were from sowings made in the fall of 1916, before the United States entered the war. It should be borne in mind in this connection that the percentage of soft corn this year was very much higher than usual, and also that the aggregate crop of spring and winter wheat harvested in 1917 was short.

The details regarding the production of the crops referred to for the three periods are given in Table 2.

TABLE 2.—*Total production of leading crops planted in 1917 and 1916, and average for five years preceding outbreak of European war.*

Crop.	1917	1916	Five-year average, 1910–1914—prewar (normal) condition.
	Bushels.	*Bushels.*	*Bushels.*
Spring wheat	232,758,000	155,765,000	233,571,000
Corn	3,159,494,000	2,566,927,000	2,732,457,000
Oats	1,587,286,000	1,251,837,000	1,157,961,000
Barley	208,975,000	182,309,000	186,208,000
Buckwheat	17,460,000	11,662,000	17,022,000
Rice	36,278,000	40,861,000	24,378,000
Potatoes (Irish)	442,536,000	286,953,000	360,772,000
Potatoes (sweet)	87,141,000	70,955,000	57,117,000
Total	5,771,928,000	4,567,269,000	4,769,486,000

Live Stock on Farms and Ranges.

During the first half of 1917 there was particular apprehension lest the number of live stock should be decreased. As a matter of fact, owing to the greater abundance of feedstuffs that the large crops of the year made available and the prevailing prices, there was revealed a most gratifying increase in the principal classes of live stock—an increase in the number of horses during the year of 353,000, or 1.7 per cent; of mules, 101,000, or 2.1 per cent; of milch cows, 390,000, or 1.7 per cent; of other cattle, 1,857,000, or 4.5 per cent; of sheep, 1,284,000, or 2.7 per cent, and of swine, 3,871,000, or 5.7 per cent. The increase of 4.5 per cent in the number of "other cattle" is due to an increase of 4.2 per cent in calves; 22.7 per cent in heifers for milk; 8.5 per cent in other heifers; a decrease of 3.2 per cent in steers, and an increase of 1.9 per cent in "other cattle" (milch cows not included). Swine over 6 months old increased 4.5 per cent; those under 6 months 7.8 per cent. Sheep over 6 months increased 0.3 of 1 per cent; under 6 months, 11.1 per cent.

It will be of interest to note that the number of live stock estimated on January 1, 1918, shows the following increases over January 1, 1914, the year before the beginning of the European war: Horses, 601,000, or 2.9 per cent; mules, 375,000, or 0.8 of 1 per cent; milch cows, 2,547,000, or 12.3 per cent; other cattle, 7,691,000, or 21.5 per cent; swine, 12,441,000, or 21.1 per cent. It is especially noteworthy that within the last year, for the first time in many years, the number of sheep has shown a tendency to increase.

The details regarding the numbers of live stock on farms and ranges on January 1, 1918, 1917, and 1914, are given in Table 3.

TABLE 3.—*Live stock on farms and ranges for Jan. 1, 1918, 1917, and 1914.*

NUMBER.

Farm animals.	Jan. 1, 1918.	Jan. 1, 1917.	Jan. 1, 1914.
Horses	21,563,000	21,210,000	20,962,000
Mules	4,824,000	4,723,000	4,449,000
Milch cows	23,284,000	22,894,000	20,737,000
Other cattle	43,546,000	41,689,000	35,855,000
Sheep	48,900,000	47,616,000	49,719,000
Swine	71,374,000	67,503,000	58,933,000
Total	213,491,000	205,635,000	190,655,000

VALUE.

Farm animals.	Jan. 1, 1918.	Jan. 1, 1917.	Jan. 1, 1914.
Horses	$2,248,626,000	$2,182,307,000	$2,291,638,000
Mules	621,064,000	558,006,000	551,017,000
Milch cows	1,643,639,000	1,365,251,000	1,118,487,000
Other cattle	1,780,052,000	1,497,621,000	1,116,333,000
Sheep	577,867,000	339,529,000	200,045,000
Swine	1,392,276,000	792,898,000	612,951,000
Total	8,263,524,000	6,735,612,000	5,890,471,000

Value of Farm Products.

The total estimated value of all farm products, including animals and animal products, for 1917 is given as $19,443,849,381, as against $13,406,364,011 for 1916, and $9,388,765,779 for the five-year average (1910–1914). These valuations are based upon prices received by producers, which are applied to the total output regardless of whether the products are consumed on the farms or sold.

The details for the three periods are given in Table 4.

TABLE 4.—*Estimated value of all farm products, including animals and animal products, 1917, 1916, and average for five years preceding the outbreak of the European war.*

Total.	Crops.	Animals and animal products.
1917 (preliminary).		
$19,443,849,381	$13,610,462,782	$5,833,386,599
1916.		
13,406,364,011	9,054,458,922	4,351,905,089
Five-year average, 1910–1914—prewar (normal) condition.		
9,388,765,799	5,827,019,026	3,561,746,753

EAR TEST SEED CORN.

The Rag Doll Seed Tester Is Simple and Effective in Showing Germination of Seed.

There are no large sections north of Virginia, Kentucky, Arkansas, and Oklahoma where the corn crop matured and dried well enough to supply any large quantity of seed which can be planted with safety without ear testing. There is very little seed of the 1916 crop available. As a result each section must depend largely upon its own 1917 crop for seed. Germination tests show that much of the supposedly good seed put up last fall is not germinating well. In this crisis there is only one way to make sure of high germinating, adapted seed, which will guarantee a good stand of vigorous growing plants necessary for a high yield. This way is to ear test the available supply in the locality, and it is the opinion of the corn specialists of the United States Department of Agriculture that all local seed supplies should be tested before outside sources are resorted to.

The Rag Doll Tester.

The obviously unfit ears can be eliminated by inspection, but many of those left, which to all appearances are well matured and fit for seed, will be shown by the tester to be weak or dead, while the remainder can be relied upon to give good results when planted. There are many testers in use, but the most practical and economical of them all is the "rag doll." Bleached muslin is a satisfactory material for making the doll. Cut into strips 16 inches wide and 3 to 5 feet long. By a line drawn down the center, and cross lines every 4 inches, the doll is divided into sections, each of which is to be filled with a 6 to 10 kernel sample from an ear to be tested. Select these kernels from different parts of the ear. Number the ears to correspond with the number of the section in which the kernels are to be placed. Fold the outer edges of the tester toward the center so that they meet, roll the doll about a corn cob or other cylindrical object, and tie. Soak the doll for a few hours, drain off the excess moisture, and place it where it will not dry out and will be subjected to a good growing temperature. At the end of about five days the tests should be ready for reading. Ears germinating 80 per cent or more should be saved for seed. This year it is well to retain all ears showing a germination of 60 per cent or over, keeping these poorer germinating ears separate. These may have to be used if the supply of seed germinating 80 per cent or better is not sufficient. If used they should be planted thicker than the good seed.

Farmers' Bulletin 948 of the United States Department of Agriculture, entitled "The Rag Doll Seed Tester," describes fully this method of testing seed corn.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MARCH 6, 1918. No. 31

STATEMENT OF PRESIDENT WILSON.

Issued in Connection with Wheat Price Proclamation.

The President has issued the following statement:

"Under the food control act of August 10, 1917, it is my duty to announce a guaranteed price for wheat of the 1918 harvest. I am, therefore, issuing a proclamation setting the price at the principal interior primary markets. It makes no essential alteration in the present guaranty. It is a continuation of the present prices of wheat, with some adjustments arising from the designation of additional terminal marketing points.

"This guaranteed price assures the farmer of a reasonable profit even if the war should end within the year and the large stores of grain in those sections of the world that are now cut off from transportation should again come into competition with his products. To increase the price of wheat above the present figure, or to agitate any increase of price, would have the effect of very seriously hampering the large operations of the Nation and of the allies by causing the wheat of last year's crop to be withheld from the market. It would, moreover, dislocate all the present wage levels that have been established after much anxious discussion and would, therefore, create an industrial unrest which would be harmful to every industry in the country.

Knows Farmers Are Loyal.

"I know the spirit of our farmers and have not the least doubt as to the loyalty with which they will accept the present decision. The fall wheat planting, which furnishes two-thirds of our wheat production, took place with no other assurance than this, and the farmers' confidence was demonstrated by the fact that they planted an acreage larger than the record of any preceding year, larger by 2,000,000 acres than the second largest record year, and 7,000,000 acres more than the average for the five years before the outbreak of the European war.

"It seems not to be generally understood why wheat is picked out for price determination, and only wheat, among the cereals. The answer is that, while normal distribution of all our farm products has been subject to great disturbances during the last three years because of war conditions, only two important commodities, namely, wheat and sugar, have been so seriously affected as to require governmental intervention. The disturbances which affect these products (and others in less degree) arise from the fact that all of the over-seas shipping in the world is now under Government control and that the Government is obliged to assign tonnage to each commodity that enters into commercial over-seas traffic. It has, consequently, been necessary to establish single agencies for the purchase of the food supplies which must go abroad. The purchase of wheat in the United States for foreign use is of so great volume in comparison with the available domestic supply that the price of wheat has been materially disturbed, and it became necessary, in order to protect both the producer and the consumer, to prevent speculation. It was necessary, therefore, for the Government to exercise a measure of direct supervision and as far as possible to control purchases of wheat and the processes of its exportation. This supervision necessarily amounted to price fixing, and I, therefore, thought it fair and wise that there should be a price stated that should be at once liberal and equitable.

Farmer Next to Soldier.

"Those peculiar circumstances governing the handling and consumption of wheat put the farmer at the very center of war service. Next to the soldier himself, he is serving the country and the world and serving it in a way which is absolutely fundamental to his own future safety and prosperity. He sees this and can be relied upon as the soldier can.

"The farmer is also contributing men to the Army, and I am keenly alive to the sacrifices involved. Out of 13,800,000 men engaged in farm industries, 205,000 have been drafted, or about 1.48 per cent of the whole number. In addition to these there have been volunteers, and the farmers have lost a considerable number of laborers because the wages paid in industrial pursuits drew them away. In order to relieve the farming industry as far as possible from further drains of labor the new draft regulations have been drawn with a view to taking from the farms an even smaller proportion of men, and it is my hope that the local exemption boards will make the new classifications with a view of lightening the load upon the farmers to the utmost extent. The Secretary of War has asked for authority to furlough soldiers of the National Army if conditions permit it, so that they may return to their farms when assistance is necessary in the planting and harvesting of the crops. **National and local agencies are actively at work besides in organizing community help for the more efficient distribution of available labor and in drawing upon new sources of labor. While there will be difficulties, and very serious ones, they will be difficulties which are among the stern necessities of war.**

Marketing to Be Facilitated.

"The Federal Railway Administration is cooperating in the most active, intelligent, and efficient way with the Food Administration to remove the difficulties of transportation and of the active movement of the crops. Their marketing is to be facilitated and the farmers given the opportunity to realize promptly upon their stocks.

"The Department of Agriculture and the Food Administration will continue to cooperate as heretofore to assist the farmers in every way possible. All questions of production, of the marketing of farm products, of conservation in the course of production, and of agricultural labor and farm problems generally will be handled by the Department of Agriculture, while all questions of distribution of food supplies to the allies and of conservation in consumption will be handled by the Food Administration; but the chief reliance is upon the farmer himself, and I am sure that that reliance will be justified by the results. The chief thing to be kept clearly in mind is that regulations of this sort are only a part of the great general plan of mobilization into which every ele-

Do Not Risk Having a Poor Corn Crop By Using Untested Seed.

ment in the Nation enters in this war as in no other. The business of war touches everybody. It is a stern business, a co-operative business, a business of energy and sacrifice, a business of service in the largest and best and most stirring sense of that great word.

"WOODROW WILSON."

GUARANTEED WHEAT PRICES.

By the President of the United States of America—A Proclamation.

Whereas, under and by virtue of an act of Congress entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," approved by the President on the 10th day of August, 1917, it is provided among other things as follows:

"SEC. 14. That whenever the President shall find that an emergency exists requiring stimulation of the production of wheat and that it is essential that the producers of wheat produced within the United States shall have the benefits of the guaranty provided for in this section, he is authorized, from time to time, seasonably and as far in advance of seeding time as practicable, to determine and fix and to give public notice of what, under specified conditions, is a reasonable guaranteed price for wheat, in order to assure such producers a reasonable profit. The President shall thereupon fix such guaranteed price for each of the official grain standards for wheat as established under the United States grain standards act approved August 11, 1916. The President shall from time to time establish and promulgate such regulations as he shall deem wise in connection with such guaranteed prices, and in particular governing conditions of delivery and payment, and differences in price for the several standard grades in the principal primary markets of the United States, adopting number one northern spring or its equivalent at the principal interior primary markets as the basis. Thereupon, the Government of the United States hereby guarantees every producer of wheat produced within the United States that upon compliance by him with the regulations prescribed, he shall receive for any wheat produced in reliance upon this guaranty within the period, not exceeding 18 months, prescribed in the notice, a price not less than the guaranteed price therefor as fixed pursuant to this section. In such regulations the President shall prescribe the terms and conditions upon which any such producer shall be entitled to the benefits of such guaranty. The guaranteed prices for the several standard grades of wheat for the crop of 1918 shall be based upon number one northern spring or its equivalent at not less than $2 per bushel at the principal interior primary markets. This guaranty shall not be dependent upon the action of the President under the first part of this section, but is hereby made absolute and shall be binding until May 1, 1919."

Now, therefore, I, Woodrow Wilson, President of the United States, by virtue of the powers conferred upon me by said act of Congress, and especially by section 14 thereof, do hereby find that an emergency exists requiring stimulation of the production of wheat, and that it is essential that the producers of wheat produced within the United States shall have the benefits of the guarantee provided for in said section; and, in order to make effective the guarantee by Congress for the crop of 1918 and to assure such producers a reasonable profit, I do hereby determine and fix, and give public notice of reasonable guaranteed prices for No. 1 northern spring wheat and its equivalent at the respective principal primary markets as follows, to wit:

Chicago, Ill., two dollars and twenty cents ($2.20) per bushel;

Omaha, Nebr., two dollars and fifteen cents ($2.15) per bushel;

Kansas City, Mo., two dollars and fifteen cents ($2.15) per bushel;

St. Louis, Mo., two dollars and eighteen cents ($2.18) per bushel;

Minneapolis, Minn., two dollars and seventeen cents ($2.17) per bushel;

Duluth, Minn., two dollars and seventeen cents ($2.17) per bushel;

New York, N. Y., two dollars and twenty-eight cents ($2.28) per bushel;

Philadelphia, Pa., two dollars and twenty-seven cents ($2.27) per bushel;

Baltimore, Md., two dollars and twenty-seven cents ($2.27) per bushel;

Newport News, Va., two dollars and twenty-seven cents ($2.27) per bushel;

Charleston, S. C., two dollars and twenty-seven cents ($2.27) per bushel;

Savannah, Ga., two dollars and twenty-seven cents ($2.27) per bushel;

Portland, Oreg., two dollars and five cents ($2.05) per bushel;

Seattle, Wash., two dollars and five cents ($2.05) per bushel;

San Francisco, Cal., two dollars and ten cents ($2.10) per bushel;

Los Angeles, Cal., two dollars and ten cents ($2.10) per bushel;

Galveston, Tex., two dollars and twenty cents ($2.20) per bushel;

New Orleans, La., two dollars and twenty cents ($2.20) per bushel;

Salt Lake City, Utah, two dollars ($2) per bushel;

Great Falls, Mont., two dollars ($2) per bushel;

Spokane, Wash., two dollars ($2) per bushel;

Pocatello, Idaho, two dollars ($2) per bushel;

Fort Worth, Tex., two dollars and nine cents ($2.09) per bushel;

Oklahoma City, Okla., two dollars and five cents ($2.05) per bushel;

Wichita, Kans., two dollars and eight cents ($2.08) per bushel;

and that the guaranteed price for the other grades established under the United States grain standards act approved August 11, 1916, based on said price for No. 1 northern spring wheat at the respective principal primary markets of the United States above mentioned, will assure the producers of wheat produced within the United States a reasonable profit; the guaranteed prices in the principal primary markets above mentioned being fixed by adopting No. 1 northern spring wheat or its equivalents at the principal interior markets, as the basis.

For the purposes of such guaranty only I hereby fix the guaranteed prices at the respective principal primary markets above mentioned for the following grades of wheat, to wit: No. 1 northern spring, No. 1 hard winter, No. 1 red winter, No. 1 durum, No. 1 hard white. The guaranteed prices at the respective principal primary markets aforesaid of all other grades of wheat established under the United States grain standards act approved August 11, 1916, shall be based on the above guaranteed prices and bear just relation thereto.

The sums thus determined and fixed are guaranteed by the Government of the United States at the respective principal primary markets of the United States above mentioned to every producer of wheat of any grade so established under the United States grain standards act, upon the condition that said wheat is harvested in the United States during the year 1918 and offered for sale before the 1st day of June, 1919, to such agent or employee of the United States, or other person as may be hereafter designated, at any one of the above-mentioned cities which are, for the purposes of this act, hereby declared to be the principal primary markets of the United States, and provided that such producer complies with all regulations which may be hereafter promulgated in regard to said guaranty by the President of the United States.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done in the District of Columbia this twenty-first day of February, in the year of our Lord one thousand nine hundred and eighteen, and of the independence of the United States of America the one hundred and forty-second.

WOODROW WILSON.

By the President:

ROBERT LANSING,
Secretary of State.

Do Not Risk Having a Poor Corn Crop By Using Untested Seed.

VARIETIES OF SPRING WHEAT.

FOR HARD SPRING-WHEAT BELT

Much of the increased area of spring wheat will be sown by farmers who are used to growing spring wheat. Some part of it will be sown in localities where spring wheat is not generally grown. Whether old growers or new growers, these men all are interested in the best variety to grow. The following discussion of varieties by specialists of the United States Department of Agriculture should be of direct interest:

The hard spring-wheat belt includes all the spring wheat territory from the Rocky Mountains eastward to Minnesota and Wisconsin. In 1917 the nine States contained in this belt grew 16,000,000 acres out of the total of 18,500,000 acres of spring wheat. In the five years from 1912 to 1916, inclusive, these same nine States grew an average of nearly 17,000,000 acres each year, out of the average total acreage of 18,500,000 acres in the five-year period. Both common and durum wheats are grown in this section, but common wheat is grown much more extensively than the durum, taking the spring wheat belt as a whole.

Marquis the Best Variety.

Marquis is the best variety of common wheat for nearly all of the hard spring-wheat belt. It was developed in Canada as an early variety for use well to the north. This earliness has enabled it to escape, to some extent, the effects of rust and drought. The short, stiff straw also prevents lodging in wet seasons. These advantages make it the best adapted variety of common wheat and growers are advised to grow it wherever they can get clean, pure seed of good quality. Marquis is a beardless variety with hairless white chaff and short, broad, hard red kernels.

Other Varieties.

The principal other varieties grown in the hard spring-wheat belt are Bluestem, Fife, and Preston ("Velvetchaff"). Of these, Bluestem has been most widely grown until recently. Fife is one of the parents of Marquis and is most like that variety. During the last four years the percentage of the spring-wheat production represented by the Marquis variety has increased rapidly. Statistics collected by the Bureau of Crop Estimates in three States, Minnesota, South Dakota, and North Dakota, prove this clearly. The average percentages of Marquis and other common wheats, and of

(*Continued on page 5.*)

FOR THE FAR WEST.

Most of the increase of spring-wheat acreage must occur in the great spring-wheat belt east of the Rocky Mountains. Some of it will take place, however, in the States west of the Rockies, especially in those States where conditions prevented the sowing of the normal wheat acreage in the fall of 1917. All men who grow spring wheat are interested in the best variety to sow. Following are suggestions of the wheat specialists of the United States Department of Agriculture.

Recent Conditions.

Dry weather in the fall of 1917 prevented the sowing of the normal acreage of winter wheat in the Pacific Northwest. In the three States, Idaho, Oregon, and Washington, the average area sown in winter wheat each year in the five-year period from 1912 to 1916, inclusive, was 1,950,000 acres. For the fall of 1917 only 1,286,000 acres were sown before December 1. This is only 60 per cent of the five-year average area. In Idaho the percentage sown was 85, in Oregon 91, and in Washington only 43. Extra effort will be required this spring, therefore, to insure getting all the remaining fallow land sown.

In general, where summer fallow every second year is necessary, no land cropped to grain in 1917 should be sown to spring wheat in 1918. This course may be attempted, however, where moisture conditions seem especially favorable. Farmers are urgently advised to consult with the county agent or officers of their State experiment station before risking the loss of seed and labor, and the loss of the use of the land in 1919.

The principal wheat-growing divisions of the far western territory are the Great Basin, the Snake River Basin, the Columbia Basin, the Willamette Valley, and the California valleys. The two great valleys of California must sow both winter and spring varieties before the end of the winter season. The Columbia Basin is divided into the eastern or Palouse district, with 18 to 24 inches of rainfall, and the western or Big Bend district, with rainfall decreasing from 18 to as low as 7 or 8 inches annually. The varieties differ considerably in these two districts.

Most of the wheat in the far west is grown under dry-farming methods, but irrigated districts are scattered throughout, and some wheat, mostly of spring varieties, is grown

(*Continued on page 6.*)

FOR NORTHEASTERN STATES.

An additional acreage of spring wheat can be secured by increased attention to the crop in sections where considerable areas formerly were planted. Spring wheat also should be sown in the Northeastern States—the northeastern quarter of the country—south and east of the present spring-wheat area. This includes the northern part of the corn belt. To be specific it includes northern Kansas and Missouri and northward, and nearly all of the country north of Kentucky and Virginia, including the New England States. Spring wheat should not be sown along the sea coast, however, and generally not on land of low elevation. In the mountainous region spring wheat should be tried where land is available as far south as Tennessee and North Carolina. There is much land in these sections on which spring wheat growing may be profitable as well as patriotic.

Where Spring Wheat Formerly Was Grown.

A fairly safe rule to follow in the present crisis, which demands a large wheat production, is for the farmers in all sections wherever spring wheat has ever been grown but now discontinued, to sow a little of it this spring if a full winter-wheat acreage was not put in by them last fall. The older farmers in a neighborhood often will recall that spring wheat was once grown there, but that it gave way perhaps to higher-yielding or better-milling winter wheat. Perhaps some other crop replaced wheat entirely. At the present time it is desirable in all such places to go back to some degree to spring-wheat growing.

If spring wheat fails the land is ready for a summer catch crop or for sowing winter wheat the next fall.

The Choice of a Variety.

In nearly all of this great area it is probable that the Marquis variety will give best results, or at least as good results as any spring wheat. Seed of this can most likely be obtained at points not far removed. Seedsmen generally should be able to supply it, or the county agent or State Agricultural College can refer to sources of seed. It is the most widely grown variety in Minnesota and the Dakotas and is easily recognized by its short, wide-creased, broad, hard, red kernels.

Handling Spring Wheat.

The culture of spring wheat should give trouble to no farmer in this section, accus-

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tomed as he generally is to winter wheat and to spring oats. The land should be prepared as for oats and seeded as early as possible. Use only land considered suitable for winter wheat. Early sowing is the best guaranty of a crop. It is best to sow wheat with a drill where one is to be had, but it can be sown broadcast and harrowed in. The same amount of seed per acre as of winter wheat, or a little more, should be sown. Six or seven pecks per acre is usually enough. Small patches of wheat sown by farmers generally in this northeastern section of the country will doubtless add greatly to our wheat supply, and will not interfere seriously with other farming operations.

HOW TO SET A HEN.

The first sign of a hen being broody (wanting to set) is that she stays longer on the nest when laying, and on being approached will quite likely remain and make a clucking noise, ruffle her feathers, and peck at the intruder. When it is noted that a hen sets on a nest from two to three nights in succession and that the feathers are disappearing from her breast, which should feel hot to the hand, she is ready to be transferred for setting to a nest which has previously been prepared. The normal temperature of a hen is from 106° to 107° F., which varies slightly during incubation.

The nest should be in some quiet, out-of-the-way place, where the setting hen will not be disturbed. Move her from the regular laying nest at night and handle her carefully in doing so. Put a china egg or two in the nest where she is to set and place a board over the opening so that she can not get off.

Toward the evening of the second day quietly go in where she is setting, leave some feed and water, remove the board from the front or top of the nest, and let the hen come off when she is ready. Should she return to the nest after feeding, remove the china egg or eggs and put under those that are to be incubated. If the nests are slightly darkened the hens are less likely to become restless.

At hatching time they should be confined and not be disturbed until the hatch is completed, unless they become restless, when it may be best to remove the chicks that are hatched first. In cool weather it is best not to put more than 10 eggs under a hen, while later in the spring one can put 12 or 15, according to the size of the hen.

Dust the hen thoroughly with insect powder, and in applying the powder hold the hen by the feet, the head down, working the powder well into the feathers, giving special attention to regions around the vent and under the wings. The powder should also be sprinkled in the nest.

MUST FEED ITSELF.

Assistant Secretary Ousley Points Out the Peril if South Fails to Provide Its Own Food.

"If the South neglects this year to provide her own food and feed, she is likely to suffer serious privation, and she will put a burden upon the Nation which may prolong the war and even imperil our victory," says Clarence Ousley, Assistant Secretary of Agriculture.

"I am aware that these are strong words," continues Secretary Ousley, "but they are none too strong. I am not expressing an alarmist personal opinion. I am seeing through the eyes of 48 agricultural colleges and of county agents in nearly every agricultural county. I have recently crossed the continent from the Atlantic to the Pacific. I have studied the reports gathered by the department's 18,000 representatives and as many more employees of the agricultural colleges. I have considered the conclusions of the International Institute of Agriculture at Rome, which has reports from all the world.

Humanly Impossible to Exceed Demand.

"The plain, hard truth is that with 40,000,000 people withdrawn from productive industries and engaged in the business of destruction, it is not humanly possible for production on the whole to exceed normal demand. The question is whether production can equal necessitous demand.

"England, France, and Italy must be sustained or their populations can not stand the strain. They have been on scanty rations for more than three years. The chief cause of Russia's collapse was hunger. Soldiers can not fight when their wives and children are starving.

Transportation May Be Lacking.

"Secretary McAdoo has given warning that transportation may be lacking in 1918, to haul food and feed to States and communities that do not provide for themselves. Many cattle have been sacrificed in the drought regions of the Northwest and the Southwest during the last few months, because railroad cars could not be obtained as needed. Military movements must have first consideration, and military movements will be greater in 1918 than in 1917. The prime question for the farmer is not what product will bring the highest price, but what products will insure food for his family and feed for his live stock, and the answer is: A vegetable garden, a milk cow, a brood sow, a poultry flock, ample corn, oats, peanuts, etc., and then as much cotton or tobacco as he can cultivate well.

"It is the highest demand of patriotism—it is the first requirement of living—that in 1918 every State, every county, every neighborhood, every farmer, be as nearly self-sustaining as possible.

No Time to Gamble.

"For the South to plunge on cotton or tobacco or any other speculative crop and to depend upon the corn belt for bread and meat will be for the South to engage in a gamble which may cause privation to its people and disaster to the Nation. For any man now to determine his business operations from the standpoint of profit alone, without regard to the Nation's needs, is for him willfully to profiteer in the blood of his fellows who are fighting in France for the preservation of the Republic. No man can be excused for not taking his share of the responsibility.

"My whole life has been spent in the South. I know the southern farmer. He will do his duty as he sees it. I am appealing to every man in the South to make known these facts—to consider it his business to make them known—and I shall have no doubt of the results. If they are not made known in a way to impress the crisis that confronts us, there may be hunger in this bounteous land or hunger over yonder in Europe, where it will spell ruin for all that is worth while in America."

IMPORTED SOY BEAN SEED.

Unmixed Varieties Not Obtainable—Farmers Urged to Plant Only Domestic-Grown Seed.

Many inquiries have come to the United States Department of Agriculture relative to the use and adaptations of imported soy bean seed for planting purposes in the United States. The utilization of soy bean seed imported from Asiatic countries for seeding is exceedingly undesirable. The farmer is strongly urged against planting this seed for either seed or forage, as disappointment with the crop will most undoubtedly result and further planting will be discouraged. It is hoped that the importers will not sell the seed for planting, and seedsmen also should avoid offering such seed for sale.

No Attention Given to Pure Strains.

Throughout Manchuria, where the soy bean is largely produced, no attention is given to pure strains. The varieties are largely designated by the color of the seed, no varietal names being given. It can be readily seen that very little information can

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be given concerning the adaptation of imported seed to different sections of the United States. After harvesting, the seed is delivered by the Asiatic farmers at the railroad stations and is purchased and stored by small merchants. No attempt is made to keep the varieties separate other than by seed color. The stored beans consist of a large number of varieties differing in maturity and other varietal characteristics and are mixed more or less with sand and trash. The exporters buy the beans from the merchants simply by weight, but before shipment the beans are graded by color of seed and cleaned. In Japan, where immense quantities of beans are utilized for the production of oil and meal and for food, the imported seed is used for oil and cake, while the domestic grown beans are used for food and planting. The imported seed is held inferior to the home-grown seed by the Japanese.

American Varieties Best.

In the United States much attention has been given to the planting and adaptations of pure strains of soy beans. There are now handled by growers and seedsmen about 25 improved sorts. The Department of Agriculture has tested out over 1,000 introductions from different parts of the Orient, and the majority of these are much inferior to the best American varieties. Of the numerous lots of imported seed tested by the department, nearly all have been found more or less mixed. It is often impossible to distinguish the varieties from seed color alone, and it may happen that a single lot of this seed will produce two or more varieties differing widely in maturity.

The farmers are urged to plant only seed of the American-grown varieties, even though at higher prices than that of the imported seed. Seed of the most generally grown varieties is still available, and information as to sources of these may be had on application to the Department of Agriculture or State experiment stations.

DON'T THROW AWAY EGG PROFITS.

You can't eat your cake and have it—but you can poach your egg and eat the hen later. Appreciation of this fact, the poultry specialists of the United States Department of Agriculture say, will add 150,000,000 eggs to our food supply this year without reducing our supply of chicken meat. Investigators have found that because poultry brings 2 cents a pound more in winter than in late spring, many farmers in the South have been throwing away valuable egg profits just to get 8 cents more per hen. They believe that if farmers will keep their laying hens and sell their eggs and then market the birds in the late spring, they will not only add to the food supply but actually increase their profits 50 cents per hen.

TREAT CUCUMBER SEED.

Tests Prove That Diseases Are Controlled by Seed Disinfection and Crop Rotation.

Tests made during the past two years have proved that the angular leaf-spot disease of cucumbers, and probably anthracnose as well, are introduced into new fields on the seed, says the United States Department of Agriculture. Dipping the seed in a one one-thousandth mercuric chlorid (corrosive sublimate) solution for five minutes renders the seed disease-free and has no injurious effect on germination. Since both diseases overwinter in the soil of diseased fields, however, it is highly important not to plant in fields which were in cucumbers the previous season.

Seed Treatment a Simple Operation.

Treatment of cucumber seed can be done most advantageously by seedsmen and pickle companies before the seed is distributed to their growers. It is a relatively simple operation and can be easily done in the storage houses if running water is at hand.

Metal containers can not be used for the mercuric chlorid solution. The highly poisonous nature of this substance should be kept in mind. Purchase mercuric chlorid on the basis of one pound to every 500 pounds of seed to be treated. Make up a concentrated stock solution of a strength of one-twentieth by dissolving 1 pound in 2½ gallons of water. This stock solution is diluted to one one-thousandth by adding 1 quart to 12¼ gallons of water. Stir thoroughly. For the treatment use a barrel, wooden tub, or large crock.

How to Treat Seed.

Place the seed in burlap or cheesecloth bags, 50 pounds in each bag. The bags should not be over three-fourths full to allow for swelling of the seed and to facilitate stirring. Immerse the bag of seed in 12½ gallons of the one one-thousandth bichlorid solution and agitate vigorously with a stick to secure thorough wetting of the seed. Remove the bag promptly at the end of five minutes. Immerse at once in a barrel of running water and stir thoroughly. Wash about 15 minutes. Dry the seed as rapidly as possible. Forced drying by a centrifugal machine or an air blast is much to be desired.

The bichlorid solution should be used only once, since its strength is greatly decreased. Make up a fresh dilution from the stock solution for every bag of seed.

To treat seed in smaller quantities dissolve one tablet of mercuric chlorid in 1 pint of water for each half pound of seed.

Guard Against Reinfection.

Guard against reinfection of the treated seed. Bags to be used for treated seed should be soaked in the one one-thousandth bichlorid solution for at least five minutes, rinsed, and dried. Solution used once for seed may be used for this purpose.

Growers should not plant cucumbers in the same fields used in 1917 for cucumbers, watermelons, or cantaloupes, or on land immediately adjacent to such fields.

As far as possible, the department will undertake to send a representative to supervise the treatment of the seed where large quantities are involved.

SPRING WHEAT VARIETIES, HARD WHEAT BELT.

(*Continued from page 3.*)

durum wheat, in the total production of spring wheat in these States, in the years 1914, 1916, and 1917, are shown in the table:

Varieties and their percentages in the total production.

	Marquis.	Bluestem.	Preston.	Fife.	Other common.	Durum.
1914...	4	43	21	15	5	12
1916...	32	21	22	9	4	12
1917[1]..	47	12	19	4	5	13

[1] Data not yet complete.

Bluestem is a beardless variety with hairy white chaff and red, hard kernels. There are many other names for Bluestem, among which are Haynes and Minnesota No. 169. It is better suited to the more humid climate of Minnesota and eastward than to the drier climate of sections westward. In Minnesota and other more humid States it usually does not outyield Marquis. Marquis, therefore, is fully recommended for this humid section also. Bluestem should be completely discarded west of the Red River Valley in North Dakota and the Big Sioux Valley of South Dakota.

Preston is a bearded variety with hairless white chaff and red, hard kernels. It is the correct name of the wheat long known to farmers, millers, and grain dealers as "Velvetchaff," though its chaff never is hairy. Early Java is only slightly different from Preston. Preston is a slightly poorer milling wheat than any of the other hard spring wheats. It makes very good yields in certain parts of Minnesota and the eastern third of the Dakotas, outyielding even Marquis occasionally. These good yields, however, usually do not make up for the lower milling value and Preston, therefore, is not recommended where good seed of Marquis can be had.

Fife, like Marquis, is a beardless wheat with hairless white chaff and red, hard kernels. It is best adapted to North Dakota west of the Red River Valley. It does

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not yield as well as Marquis in this State, however, but is sometimes preferred in the drier sections, on land previously cropped to small grain, because of its taller straw. In general, it should be used only if good seed of Marquis can not be obtained.

Durum Wheat.

Durum wheats are grown from Minnesota westward to Colorado, Wyoming, and Montana. The area of extensive production is in the eastern one-third of the Dakotas. They are more resistant to drought and to rust than are the common wheats. Because of their drought resistance they also are better adapted to shallow soils, which usually contain less water for crop use than better soils. Because of these adaptations, the best durum wheats usually outyield even the Marquis in these places by about 2 bushels per acre. In the past five years the price of good durum wheat has been about the same as that of good common wheat, and now the fixed price is the same for equal grades.

In growing durum wheat much care should be given to the quality of the seed and to the variety it represents. Much of the seed available in the sections where durum is extensively grown is mixed with seed of common spring wheat. Such mixtures greatly reduce the market value of durum wheat. There are only two varieties of durum wheat widely grown—namely, Kubanka and Arnautka. Kubanka is best adapted to the dry-land sections, while Arnautka does better in the more humid portions from the Red River Valley eastward into Minnesota.

SPRING-WHEAT VARIETIES, FAR WEST.

(*Continued from page 3.*)

under irrigation. Common wheat and club wheat are the two classes grown, durums being almost wholly lacking. Soft-kerneled wheats are much more common than hard, and the principal varieties have white kernels instead of red.

Varieties for the Far West.

Conditions in the wheat-growing areas west of the Rocky Mountains are more localized than elsewhere in the country. This is due largely to the numerous mountain ranges and consequent rapid changes of elevation, rainfall, and soil. The varieties of wheat grown differ greatly also under these different sets of conditions.

The leading variety of spring wheat in all the western areas is Pacific Bluestem. It is the standard market wheat in the West. The chief objection to it in the drier sections is its late maturity. Pacific Bluestem is awnless, with rather large white kernels. It is known commonly as Bluestem in most of the sections and as White Australian in California. Other names for it are Palouse Bluestem, Silver King (California), and White Elliott (Washington).

In the past three or four years an earlier maturing variety, Early Baart, has been gaining in favor. It makes better yields than the Pacific Bluestem in the drier sections, and the quality is fully as good. It is not known whether Early Baart will prove a better yielder also in sections having more rainfall. It is being widely purchased for sowing this coming spring, and the acreage sown will be limited only by the available seed. Farmers are advised to obtain it wherever possible. The Early Baart is bearded, with hairless white chaff and large white kernels. The chief objection to it is the fact that it is bearded. In the Palouse district and other sections having better rainfall, the weaker straw also may prove an objection.

In Utah and southern Idaho, Defiance and Regenerated Defiance are grown to some extent, both on the dry farms and under irrigation. One form of Defiance, known as Colorado No. 50, recently displaced Pacific Bluestem on the Rexburg Bench in southeast Idaho, but proved unsatisfactory. All forms of Defiance are beardless, with white kernels of good quality.

Marquis has been introduced in several dry-land districts of the western wheat regions. Its earliness makes it best adapted to the higher elevations where the season is short, and to the drier sections, where varieties must mature before the moisture supply is gone. It is not as early and does not yield as well as Early Baart, however, but may be preferred to Early Baart because beardless.

Club wheats are grown sparingly throughout the western wheat areas. Only in part of the Palouse district of southeastern Washington and adjacent small portions of Idaho and Oregon are the club wheats the leading varieties. They include both winter and spring varieties. The sorts commonly grown in the spring in this district are Redchaff and Jenkin, with some Washington Hybrid No. 143. All these three varieties are grown as winter wheats also in this same district. The Redchaff appears to be more commonly grown in the hills and the Jenkin on the flat lands. None of these club wheats is of as good milling quality as the Pacific Bluestem, Early Baart, and Defiance. The market value of the club wheats is less than that of common wheats, both under normal conditions and at present.

Fowls of the heavier breeds cease to produce a profitable number of eggs at the end of their second laying year. This holds true with the lighter breeds at the end of their third laying year.

USING THE INCUBATOR.

Successful Operation of the Machine Requires Close and Careful Attention to Many Details.

One difficulty in setting eggs as early in the spring as is necessary for early hatchers, if the natural system of incubation is followed, is in finding broody hens at the proper time. If natural incubation be depended upon exclusively, the poultry raiser must wait until the hens are ready to set. This is not true, however, if an incubator is available, for if the eggs are fertile they can be started at any time the operator desires.

Disinfect the Incubator.

The incubator should be operated in a fairly warm room, preferably a cellar, as a protection against outside temperature changes. Sudden changes in temperature in the room are to be avoided. The machine should be disinfected thoroughly before being used, with a solution of reliable coal-tar disinfectant. Instead of using such a solution, a small receptacle containing one-half ounce of permanganate of potash on which one-half ounce of formalin has been poured may be shut up in the incubator. The resulting gas will thoroughly disinfect the machine.

How to Operate the Machine.

After disinfection the incubator should be run empty for several days to get it into good operating condition. After the eggs are in place the temperature should be held at from 101½° to 102° F. the first week, 102° to 103° the second week, and at 103° the third week.

The eggs usually are turned for the first time at the end of the second day and twice daily through the eighteenth or nineteenth day. The eggs are cooled outside the hatching chamber once daily after the seventh and up to the nineteenth day. Moisture should be furnished in artificial incubation in the South, in high altitudes, and when the incubator room is dry. This may be done by sprinkling the eggs with warm water or by placing a wet sponge or pan of water under the egg tray.

During the hatching period carefully fill the lamp and trim the wick each day. It is best to trim the wick by scraping off the burnt portion rather than by cutting the wick. The lamp should not be filled entirely. After the lamp is filled it should be closely observed for a time to make sure that the flame does not get too high.

All cereals should be kept in dry, well-lighted store rooms. Damp, dark cellars should never be used for storing foods.

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POLICY AND SCOPE OF FOOD ADMINISTRATION WITH RELATION TO PRICE FIXING.

Mr. Hoover Issues Statement Correcting Misinformation Regarding Policy of Food Administrator.

Mr. Herbert Hoover, Food Administrator, on February 25, issued the following signed statement which is of special interest to producers:

There appears to be a good deal of misinformation circulated amongst the agricultural community as to the policy and scope of the Food Administration with relation to price fixing. I wish to say at once and emphatically, that the Food Administration is not a price-fixing body except with regard to certain commodities which are to-day dominated by wholly abnormal over-seas commercial relations, and the surrounding factors with regard to which are such as to project great dangers both against the farming community and at the same time the consuming community. The two commodities under regulation are wheat and sugar. With the further exception of cases in which it has intervened purely as a friendly intermediary between organized producers and consumers—as in city milk—the Executive Department of the Government has no authority and no desire to fix prices of products of agriculture.

Reasons for Control of Wheat and Sugar.

It seems necessary and desirable to restate the reasons already referred to by the President which render it necessary and possible to undertake control of the marketing of these two commodities. The economic forces arising out of the war, which have necessitated this action, are in the main as follows:

1. All of the over-seas shipping in the world has been placed in Government control and the volume of this shipping is much reduced. As a consequence there is no longer any free play in commercial over-seas traffic, as the Governments involved must designate what tonnage is to be assigned to each commodity and each class of traffic.

2. Inasmuch as normal commercial over-seas traffic has broken down, it was necessary for the allied Governments in Europe to set up single agencies for the purchase of the whole of their food supplies from abroad. Of American wheat their purchases are of sufficient volume to control the price—and this is the only agricultural commodity where this maintains.

3. In the face of a necessary duty to reduce our consumption of food—so badly needed by the allies—it has been absolutely necessary to arrive at a division of these two commodities in the common interest of the war and to control the reduced supplies internally, in order that all may be treated alike, rich and poor, and this implies a control of distribution and price.

The Wheat Problem.

As stated, practically the only commodities as to which these new economic forces dangerously involve the United States are wheat and sugar. All control measures are the less of evils. In wheat we were faced with a single agency whose proportionate purchases to the total were such as to dominate the price. Any relationship with this agency by our officials in limiting their operations thus becomes absolutely price fixing, and it becomes at once a question as to whether it should be done openly and frankly with our producing community, or done secretly, at the will of Government officials. Furthermore, in the ordinary course of our wheat marketing the wheat goes to the markets during the first four months of the harvest year, and during this period, were no control established with the allies and neutrals, it would be entirely possible for them to export from the United States such a portion of our wheat supplies as to leave our population short of bread. It has therefore been necessary in the interest of the American consumer that the Government should intervene to protect his supplies. Again, in the face of this abnormal situation the normal wheat-marketing machinery of the country was completely paralyzed. To have attempted the normal course of marketing through the boards of trade and exchanges, by which the buyers of wheat protect their operations by sales of futures, involved a dangerous series of speculations, nor did the exchanges themselves wish to be the centers around which such speculations should take place. Every action of the allied buyer, every rumor of peace, and thereby the liberation of the large wheat supplies in Australia, every monthly shipment of wheat abroad in the depletion of national supplies, would have been the center of speculation and the cause of violent fluctuations in the exchanges of the same character that occurred during the last five months of the 1916 harvest year, when, although the farmer had marketed his wheat at an average of $1.44 a bushel, the price, due to these very causes, at one time rose to over $3 a bushel and flour to over $17 a barrel.

In these circumstances an independent commission was appointed by the President, upon which the farming community was represented by 6 members out of 11, and this commission unanimously agreed upon the price of $2.20 for No. 1 northern wheat, based on Chicago, as a market center, and in coming to its conclusions this committee considered the necessity to give to the farmer a price not only covering his cost and normal profit, but a price that would stimulate and assure future production. That their judgment has proved correct is evidenced by the fact that 42,000,000 acres of winter wheat have been seeded, being an increase of about 2,000,000 acres over any acreage hitherto known in our history and some 7,000,000 acres over the prewar average.

Having established the basic price of this commodity, the Food Administration has followed it through the manufacturing and distributing trades with limitations as to the profits to be earned in distribution, and has thereby brought this prime commodity to the door of the consumer at the least possible expense and at a margin between producer and consumer less than normal. The same situation confronts the American farmer and the American consumer in wheat for the next harvest year.

Sugar.

In the matter of sugar, the same economic forces are in action to displace normal traffic, except that in this case the American people are purchasers abroad of the large portion of their supplies, and that, in addition to the necessity of governmental action to secure a fair division of the available sugar to the American people, it has been common business prudence to join with the allied Governments in a definite contract with the Cuban authorities as to price, rather than leave it to the fluctuations which would arise from short supplies and irregular shipping facilities. Where the various arrangements made have involved the interests of the American sugar producer they have been made in consultation with him and with his cooperation, in order that he might be protected in his industry. In this case, as with wheat, the distributing trades have been placed under regulation as to the

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profits in distribution of a stabilized commodity and the consumer protected as to price.

Milk.

The only other situation where the Food Administration has interested itself in price of agricultural products has been in instances such as milk to the cities, where the producer was himself organized and was in sharp conflict with the consumer, and where these conflicts promised to work hardship on both producer and consumer. In such cases the Food Administration has acted merely as a friendly agent in securing a settlement between the parties. In all such cases the producer must necessarily be a contracting party and therefore must be satisfied with the arrangements made and, it may be stated parenthetically, that no such negotiations have been undertaken by the Food Administration except at the request of the producers.

Pork.

A similar case lies in the purchase of pork products by the allied Governments, which while not sufficiently large to control the market, yet could affect the price. In this instance, representative bodies of the producers were called together and upon their recommendation the Food Administration undertook, so far as the influences of these purchases made it possible, to use the purchases for the purpose of maintaining a minimum price for live hogs in Chicago, in order to prevent an undue fall in the price of hogs during the larger packing season and thus the discouragement of the producer.

Beyond the above, the Food Administration has no powers or intention to in any way interest itself in price.

Elimination of Profiteering.

Aside from these matters the Food Administration has been actively interested in the elimination of profiteering and speculation in the distributing trades by regulating the profits onto a prewar normal basis in order that no greater tax should be placed upon the consumer by virtue of the high prices than bear a proper relation to producers' receipts. A still larger duty has been the maintenance of the even course of food distribution in these times of the greatest dislocation in which the administration is called upon hourly to help in many directions. The law of supply and demand is not seriously disturbed by the condition of over-seas transport and over-seas market in any other food commodities than those mentioned. The law of supply and demand has been, however, seriously interfered with in the other food commodities within the United States during the last three months by virtue of the cumulative shortage, irregularity, and disturbance in railway transportation and consequent delay of months in marketing the harvest. It is considered, however, by the administration that the solution to this situation should be obtained by the increased mobility of transportation and thus the restoration of the free flow of commodities.

(Signed) HERBERT HOOVER.

MEAT SCRAP SUBSTITUTES.

Peanuts, Soy-bean, or Velvet-bean Meal Gives Good Results with Laying Hens.

In the 18 months preceding January, 1918, the price of meat or beef scrap has increased 100 per cent, while in some places it has been difficult to secure it at all, making it advisable to use something in place of this feed. Previous experiments have shown that beef scrap or some other animal protein feed is essential in a mash to get good egg production and to produce eggs economically, especially during the winter. Rations for laying hens containing peanut meal, soy-bean meal, and velvet-bean meal have been used with good results since the 1st of November on the Government poultry farm.

How Rations Were Mixed.

Half of the beef scrap normally fed in the mash has been replaced by these feeds, making the rations as follows: A scratch mixture of two parts cracked corn and one part oats, and a mash of nine parts corn meal, five parts middlings, four parts bran, two parts beef scrap, and two parts of either peanut meal, soy-bean meal, or velvet-bean meal. All of these parts are by weight. A similar ration containing cottonseed meal has been fed with good results for over one year. The percentage of protein in these feeds was as follows: Beef scrap, 50 to 55; soy-bean meal, 44; cottonseed meal, 38; peanut meal, 28; and velvet-bean meal, 19.

The egg yield for the first three months has been fairly good with all of these feeds, but not quite as good as has been secured from the use of a normal amount of beef scrap. The highest egg yield was secured from the peanut meal; nearly as good results from the soy-bean meal, but only a fair egg yield from the velvet-bean meal. It would appear that all of these feeds are worthy of a trial, used with beef scrap, in sections where they are easily secured. These tests will have to be carried through a considerable period of time to accurately determine the relative value of these feeds.

FARM BUREAU IN EVERY COUNTY.

While several States have county agents in every county, to Iowa belongs the distinction of being the first State to organize a farm bureau in each county, according to information reaching the United States Department of Agriculture.

The farm bureau is a voluntary local organization of farmers for cooperation with the United States Department of Agriculture and the State agricultural colleges in extension work. It outlines and carries out a definite program of agricultural improvement. Essentially it is a chamber of agriculture, corresponding in many of its functions with the city chamber of commerce. It has been developed as the answer to the need of the county agent for an effective organization to extend the extension work effectively over the county.

One of the important features of farm bureaus, especially at the present time, is to assist county agents in federating agricultural forces for the national defense.

New York has nearly completed its list of farm bureaus, and a number of other States are not far behind.

If efforts were made to dispose of all hens when their best laying days were over, a large quantity of poultry meat would be placed on the market. All poorly developed chickens should be culled out and sold for meat, also. This would allow the poultry keeper to make the best use of his grain by feeding it to younger and more productive fowls.

The simplest way to prevent the accumulation of dirt is to make it easier to be clean than to be dirty.

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WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MARCH 13, 1918. No. 32

CITY'S PART IN SOLVING FARM-LABOR PROBLEM.

Responsibility of Town People in Production of Enough Staple Food.

By David F. Houston, Secretary of Agriculture.

Some time ago I issued a statement concerning the farm-labor problem. It was pointed out that there will be farm-labor difficulties to overcome this year, as last, and that in certain sections, especially in the neighborhood of large industrial centers, the difficulties will be acute. The lines of effort were indicated along which the Departments of Agriculture and Labor, through representatives in various States cooperating with the agricultural colleges and other agencies, are working to furnish assistance. Briefly restated, these agencies are doing the following things: (*a*) Making a survey of the farm-labor situation in each community with a view to discover possible surpluses of labor in order to be ready to assist in furnishing labor wherever it is needed; (*b*) assisting again in shifting labor from community to community and from State to State, as in past years; (*c*) promoting fuller cooperation among farmers in the same community; (*d*) making available, so far as possible, high-school boys in rural districts who have had experience in farming and who are not normally regularly or fully employed in farming operations; (*e*) making every effort to see that there is no obstacle in the way of the production of a larger supply of farm machinery and its fuller use as a supplement to hand labor.

Last year, in spite of all the difficulties, the farmers planted the largest acreage in the history of the Nation, harvested record crops of most important things except wheat, and succeeded in greatly increasing the number of live stock. Since last year skilled farm labor has been given deferred classification and the Secretary of War has asked for power to furlough soldiers of the National Army if their training permits, so that they may return to their farms and assist. It is believed that the farmers of the Nation can, by effective organization and cooperation, with such assistance as can be furnished, again overcome labor difficulties and produce large quantities of foods, feedstuffs, and live stock.

> If soldiers are willing to serve in the trenches, to dig ditches, build railroads, and risk their lives, many civilians can well afford to spare a part of their time to serve in the furrows and in the harvest fields.—*Secretary of Agriculture.*

Communities Must Be Ready To Aid Farmers.

There is an opportunity now for urban people sympathetically and constructively to study the farm-labor situation and to render assistance. In many towns and cities there are men who have had farming experience, who are able-bodied, and who would doubtless be willing to serve the Nation in the field of agriculture at this time. Especially for the seasonal strains of planting, cultivating, and harvesting, it will not be too much to ask such men to aid the farmers in the necessary undertaking of maintaining and, if possible, supplementing the food supply in order to feed the armies and to sustain the civilian population behind them. If soldiers are willing to serve in the trenches, to dig ditches, build railroads, and risk their lives, many civilians can well afford to spare a part of their time to serve in the furrows and in the harvest fields. If it appears that the farmers of a community or region are not able to secure the necessary labor by the usual methods, then the leaders in the town or city immediately dependent upon that region should organize, establish touch with representative farm leaders, and see if they can not assist in solving the problem. In so doing they will not only aid the farmers of the Nation but they will vitally contribute to their own well-being and to that of their community.

> It will not be too much to ask able-bodied men with farm experience to aid the farmers in the necessary task of maintaining the food supply.—*Secretary of Agriculture.*

The farmers are willing to do all that they humanly can, but where their labor supply can not be furnished from the ordinary sources, it must be recruited from those whose very sustenance depends upon the farmers. The soldier and the farmer are eager to do their full share; the soldier is taking the chances of losing his life and the farmer is risking the labors of a year on the chance of the seasons; both incur risks. Very many civilians are equally eager to do their share but may not appreciate the opportunity to serve in the field of agriculture.

The Departments of Agriculture and Labor will render every possible aid, but each community knows its own problems, and urban people, especially business men, could cooperate effectively with the farmers and also render much assistance.

> The soldier and the farmer are eager to do their full share * * * both incur risks. Very many civilians are equally eager to do their share, but may not appreciate the opportunity to serve in the field of agriculture.—*Secretary of Agriculture.*

EXPRESS COMPANIES TO MOVE SEED.

That field and garden seed may be forwarded by express in many cases is indicated by inquiries among the large express companies made through the Bureau of Markets, United States Department of Agriculture. None of the companies has established embargoes against seed shipments, and they say that they are prepared to cooperate fully in moving field and garden seed, giving them preferred attention wherever the necessity exists.

One company has established a weight limit of 500 pounds for shipments of any commodity, but is willing to accept all seed in packages weighing less than this limit.

IMPROVE DAIRY CATTLE.

Cooperative Bull Associations Increase Milk Production—Reduce Expense to Dairyman.

The scrub bull must go; the cooperative bull association has sounded his death knell. No longer can he retard dairy development and hinder efficiency. Every dairy herd should produce the maximum of milk at the minimum of cost. By breeding to superior sires milk production can be greatly increased in a single generation and greater economy effected. It has been impossible for the 4,000,000 farmers who produce the bulk of this country's milk supply, but who own an average of less than 10 cows, to use bulls of high quality because of the great expense. By joining a bull association any dairy farmer may own a share in an excellent pure-bred bull at a cost far below that ordinarily paid for a scrub. The initial cost is smaller and the maintenance cost is very much less.

Scrub Bull Worth Most as Beef.

Dairy bulls are judged by their ability to increase the production of their daughters over the dams. Scrub bulls can only decrease production—thus lowering the efficiency of the herd. Their harm is not ended in one generation, but continues indefinitely. With beef at exceptionally high prices, sell the scrub bull, for his meat value far outweighs his dairy worth. A common practice for the farmer with a few cows is to breed to the nearest bull, regardless of breed, breeding, or conformation, and as a result dairy herd improvement is slow.

The cost of bull service also falls heavily on the commercial dairyman with a small herd, as bulls must be changed every two or three years to avoid inbreeding. As a rule, therefore, he buys a bull calf from the nearest farmer who keeps the breed in which he is interested. Too often cost is the first consideration. Too seldom is the bull pure bred, and even then authentic production records of his ancestors are not usually available. The result is lack of improvement. Though a great pure-bred bull occasionally may be secured in this way, in nearly every case he will have been disposed of before his heifers come in milk and his value has been determined. In this way many of the greatest bulls have been lost to the dairy industry. A cooperative bull association will remedy these difficulties.

What a Bull Association Is.

A cooperative bull association is a farmers' organization whose purpose is the joint ownership, use, and exchange of three or more high-class, pure-bred bulls. The territory covered by the association is divided into three or more breeding blocks, and a bull is stationed in each block for the service of the 50 to 60 cows in the block. Every two years the bulls are interchanged. Thus, at small cost, a bull for every 60 cows is provided for six or more years. The cost of bull service is thus greatly reduced, the best of bulls are obtained, and the man with limited means and only a few cows is enabled to improve his herd. Bulls of outstanding merit are preserved for their entire period of usefulness. Associations of this kind teach cooperation, encourage careful selection of cows and calves, introduce better methods of feeding and management, intelligently fight infectious diseases of cattle, and assist in the marketing of dairy stock and dairy products. Assistance in organization may be obtained by writing to the Dairy Division, Bureau of Animal Industry, United States Department of Agriculture.

MILK PRODUCTION INCREASED.

The following table shows the records of the daughters of certain bulls that have been used in cooperative bull associations, and also shows the records of the dams of the daughters:

		Average fat production.
Bull No. 1:		
7 daughters	pounds	270.5
7 dams	do	208.3
Average increase	do	62.2
Bull No. 2:		
7 daughters	do	281.6
7 dams	do	226.4
Average increase	do	55.2
Bull No. 3:		
2 daughters	do	369.5
2 dams	do	254.0
Average increase	do	115.5

One fact cited by the dairy specialists in support of the cooperative bull association is that about three-fourths of the 23,906,000 dairy cows in the United States are owned in herds of less than 10 cows. The owners of these small herds in many cases can not afford to maintain pure-bred bulls, and for such owners the bull association offers the only practical remedy for the poor quality of dairy cattle. Through bull associations they can improve their cattle and decrease expense.

TEST HATCHING EGGS.

Remove Infertile Eggs and Dead Germs from Nest or Incubator.

As soon as a fertile egg is placed under a hen, or in an incubator, development begins. All eggs should be tested at least twice during the period of incubation, preferably on the seventh and fourteenth days, and the infertile eggs and dead germs removed. White eggs can be tested on the fourth or fifth day, while the development in eggs having brown shells often can not be seen by the use of an ordinary egg tester until the seventh day. Dead germs soon decay and give off a bad odor if allowed to remain under the hen. Infertile eggs make good feed for young chickens. Most incubator companies furnish testing chimneys with their machines which will fit ordinary lamps. Electric or gas lamps may be used in a box with a hole slightly smaller than an egg cut in the side of the box and at the same level as the light. They may also be tested by sunlight, or daylight, using a shutter or curtain with a small hole in it for the light to shine through.

Homemade Egg Tester.

A good homemade egg tester, or candler, can be made with a large shoe box, or any box that is large enough to go over a lamp, by removing the end and cutting a hole a little larger than the size of a quarter in the bottom of the box, so that when it is set over a kerosene lamp the hole in the bottom will be opposite the blaze. A hole the size of a silver dollar should be cut in the top of the box to allow the heat to escape.

The eggs are tested with the large end up, so that the size of the air cell may be seen as well as the condition of the embryo. The testing should take place in a dark room. The infertile egg when held before the small hole with the lamp lighted inside the box will look perfectly clear, the same as a fresh one, while a fertile egg will show a small dark spot, known as the embryo, with a mass of little blood veins extending in all directions, if the embryo is living; if dead, and the egg has been incubated for at least 46 hours, the blood settles away from the embryo toward the edges of the yolk, forming in some cases an irregular circle known as a blood ring. Eggs vary in this respect, some showing only a streak of blood. All infertile eggs should be removed at the first test. The eggs containing strong, living embryos are dark and well filled up on the fourteenth day, and show a clear, sharp, distinct line of demarcation between the air cells and the growing embryo, while dead germs show only partial development, and lack this clear, distinct outline.

The failure to employ modern methods of lightening labor in the house is a great hardship in many farm as well as city homes.

In feeding hogs for the market, as also any other class of meat animals, larger returns are obtained when the stock is as nearly uniform as possible.

FARROWING TIME.

Spring Crop of Pigs Will Require More Than Ordinary Care if Demand for Pork Is Met.

More than ordinary care should be taken of the spring crop of pigs this year, the swine specialists of the United States Department of Agriculture point out. Every pig that it is possible to save must be looked after. This takes a bit of extra care—probably a few sleepless nights and getting out in some mighty nasty weather—but these inconveniences are necessary if we are to meet the demands for pork.

Care of the Sow.

Do not confine the sow in her farrowing pen more than 48 hours before farrowing time if it is possible to avoid doing so. Reduce the heavy feed to some extent, probably about half, for that length of time. The farrowing house or pen should be comfortably warm, well ventilated, and well lighted. Above all else, it should be well bedded. Do not allow any circulation of air under the floor. Too many hog growers make the mistake of bedding too lightly. Heavy bedding naturally makes the sow comfortable and warm—conditions necessary if she is to be quiet. Use wheat or rye straw. Wild hay is good, as is millet. Do not use oat straw unless there is absolutely nothing else at hand.

Under no circumstance should the sow have any feed whatever for 24 heurs after farrowing. She must, however, have plenty of water at frequent intervals. This water must not be icy cold—that drawn directly from the well is about the right temperature. Commence after 24 hours feeding lightly, increasing the feed gradually for probably a week or 10 days, when she may be gotten onto full feed, conditioned on the size of the litter and the milking qualities of the sow.

Look Pigs Over Before Each Feeding.

A good herdsman, for the first week at least after farrowing, will look the pigs over carefully before each feeding. If any indications of scours appear, the sow's feed should be reduced immediately or possibly cut out entirely. A heavy feed of rich slop given when scours begin to show up possibly may kill the entire litter. A little extra care for these few days is absolutely necessary.

Give Pigs Exercise.

When the pigs are from 4 or 5 to 10 days old, be on the lookout for thumps. The best looking fat little pig is the one to go first every time. An almost certain indication is a little roll of fat around the neck. While there is no known cure for thumps, the trouble is quite easily prevented. Plenty of exercise for the pigs is the answer. In cold stormy weather out-of-door exercise is impossible, but if a central farrowing house with an alleyway is used, get the little fat fellows into the alley and put in about 10 or 15 minutes three or four times a day chasing them with a buggy whip until they are pretty well tired out. If this is impossible, try putting one or two of the little pigs at a time in a large barrel or hogshead placed by the farrowing pen. The pigs will hear the old sow making a fuss, and in running around the barrel hunting for a corner to climb out generally will take the exercise necessary to ward off thumps. A considerable part of the battle is won if the litter gets past the first 10 days or so with a good start.

FARM PRODUCTS EXCEPTED.

Freight Embargoes Not to Include Shipments of Crops and Farm Supplies.

In connection with the shipment of farm products and supplies, instructions issued by the Car Service Commission, under date of February 11, to railroads concerning the placing of freight embargoes by different roads, state that wherever a complete embargo is not essential exceptions must be made, in so far as practicable, of certain commodities, among which are many farm products and farm supplies.

Classes of Exceptions.

The first exception is in the case of live stock (Class A); others in order being: (Class C) food, domestic (not export), for human consumption, including wheat, corn, oats, rye, barley, rice, cereal products, salt, canned goods, sugar, sirup, molasses, peanuts, vegetable oils. Feed, domestic (not export), for animals and poultry, not including hay or straw. Classes D, E, and F do not include farm products or farm supplies, while Class G, the last group of the commodities which are to be excepted wherever practicable in applying embargoes, includes, in order, agricultural implements and farm machinery required for preparing the soil; binder twine; canning machinery; fertilizer; fertilizer materials, including agricultural lime and pulverized limestone; field and garden seed; seed grain; food containers, glass, wood, tin, or paper; fuller's earth; spraying materials, arsenic, basis for insecticides and spraying implements; sulphur; and tin plate for manufacture of tin cans.

According to the instructions to railroads, embargoes placed against carload freight includes less than carload shipments which are ordinarily forwarded in carload lots. Cars must not be loaded in violation of embargoes. When this is done, agents are not permitted to issue bills of lading, and if cars are not unloaded they will be held at point of origin, subject to current demurrage charges, until unloaded or until embargo is lifted.

COUNTY AGENTS INDORSED.

Work of Demonstration Agents Highly Commended by Investigators.

Three members of the agricultural committee of the County Council for Defense, of Columbia County, Wis., were selected to investigate the work of county agents in other counties and to report to the county board of supervisors whether it was advisable to make appropriations for either the continuation of the emergency demonstration agent work or for the employment of a permanent county agent. The committee, after carefully investigating the work of the county agents in Wisconsin and other States, made the following report to the board of supervisors:

Report of Committee.

"First. The county agent is a great aid to the county in encouraging the breeding and raising of pure-bred stock, grain, and potatoes.

"Second. He has saved the farmers of the county many times his salary in aiding them to select breeding stock.

"Third. His advice concerning liming and inoculation has enabled us to raise clover and alfalfa when before we were wasting money sowing the seed.

"Fourth. He has been able to bring our farmers closer together by arranging for institutes, meetings, and contests. We like our business better and are happier.

"Fifth. Our county agent answers the medium of exchange, and many dollars' worth of stock and seed have changed hands through his influence.

"In view of the information received regarding the work of county agents, this committee recommends to the county board that they appropriate to the county council of defense sufficient funds to employ an emergency agent under the Federal provision for same. However, should the Federal appropriation be discontinued before December 1, 1918, we ask that a county agent be employed, as provided by chapter 224 sections 1–3, Laws of 1917.

(Signed) "GEORGE STAUEENMAYER.
"F. C. HAZARD.
"JOHN BRADLEY."

A piece of thrifty woods increases the sale value of the farm. Now is the time to improve your woodlands by cutting out the inferior trees for wood fuel.

KEEP FARM ACCOUNTS.

Simple Notes Taken Day by Day Will Prove of Great Assistance in Managing a Farm.

There is no doubt that the keeping of farm accounts will prove of great value in determining the branch or branches of farming that are most profitable. If they are kept accurately for a long period they may be of great assistance in replanning the farm on a more profitable basis. March 1 is usually regarded as the beginning of the crop season, and therefore it is a good time to start in with the accounts. The kind of books and figures used does not matter in the least, provided the records are complete and accurately kept. It is desirable, however, to keep a system that can readily be summarized at the end of the month and year.

Value of Cash Record.

A record of the cash received and paid out is made by many farmers, but all the value to be derived from such records are seldom realized. The most important use made of them in most cases is as a means of checking up bills. The realization of even this small part of their full value sometimes makes such records well worth while. There is no reason why every farmer should not have such a check on his business dealings, and losses can often be avoided by proving credits that have been overlooked by some dealer.

Perhaps the simplest and most interesting way of keeping the cash account is in the form of a diary. Part of the page may be used to record the daily happenings and the other part for the cash record, thus giving a complete record of the day. Many people find it interesting to note down personal affairs, ideas, and events, thus adding to such records a personal touch, making them of more than business significance and giving them color that will make them interesting in the years to come. Any information wanted at the end of the year may be assembled from such a daily account book in a short time.

Frequently an Eye Opener.

When the record is kept of all the money taken in and spent on the farm the cash accounts can be assembled under various headings at the close of the business year and will show exactly what branch of farm activities have proved most profitable. Some farmers are likely to judge the importance of various farm projects by the time it takes to put them through. To such a cash record for a year, properly assembled, will be an eye opener. Often seemingly unimportant things on the farm, such as the flock of poultry, produce nearly as much net cash as the obviously important. The year's cash summary helps the farmer to get a better perspective of these things.

Study the Records.

In using such records hasty conclusions should not be drawn nor snap judgments be taken. The fact that hogs or the corn crop brought in the most net money last year is no reason for assuming that all activities next year should be devoted to the sole purpose of hog and corn raising. It may be that the keeping of cows was partly responsible for making the hogs so productive of net cash, or that the growing of wheat, clover, or other crops in rotation with corn made the latter crop much more profitable than it would have been if grown alone. Cows, for instance, may not be showing much profit when feed, labor, equipment, and all expenses and costs are considered, but if all the cows are sold there may be no other profitable way to use up roughage which would thereby be wasted, resulting in a loss on the crop producing it. Labor devoted night and morning to milking and feeding cows and charged to them would be entirely wasted if the cows were sold and nothing else supplied to utilize it. Thus, an added labor burden would have to be borne by the other enterprises. Any changes in the management of the farm, based on the farm account records should, therefore, be brought about gradually and the effects noted in their relation to all other farm activities.

Make Yearly Inventory.

At the beginning and end of the business year the farm inventory should be taken. This inventory is simply a statement showing what the land, buildings, equipment, live stock, supplies, and produce on hand are worth at the time the inventory is made, together with the amount of cash on hand and the money owing to and owed by the farmer. It is a list of farm property and farm debts and corresponds to the "stock taking" which every merchant does periodically. Taken alone the inventory will show the farmer actually what he is worth. inventories of two dates a year apart show what progress has occurred during the year. The comparison of these yearly records is one of the most valuable features of keeping farm accounts, since by such comparison a true perspective and insight into the make-up of the business is gained.

DEFINITE PURPOSE NEEDED.

The lack of definite purpose, too often shown by the American farmer, is illustrated in the following letter, which recently was received by the dairy specialists:

"Please send me some instructions on breeding dairy cattle. I have been crossing Jerseys and Holsteins. I would also like some information on milking goats."

This request indicated that the inquirer has followed the plausible plan of crossing the Jersey, noted for the quality of its milk, with the Holstein, notable for its quantity, hoping to produce cows that would give milk in the quantity of the Holstein and of the quality of the Jersey. He failed, like most who have experimented in this manner, found that his cows gave milk of Holstein quality and in Jersey quantity, and then began to think about changing from dairy cattle to milk goats.

The dairy specialists have advised him to select one breed of cattle and "stick to it."

STARTS FOOD CAMPAIGN.

California Farm Bureau Pledges Utmost Endeavor for Maximum Crop Production.

The following telegram dated at Stockton, Cal., has been received by the Secretary of Agriculture, D. F. Houston:

"California's 1918 campaign for greater food production toward winning world war launched to-day here, seat of county ranking twelfth among all counties of United States in crop production. Mass meeting called by San Joaquin County farm bureau and addressed by Dean Thomas F. Hunt emphatically on record in support of all measures taken by Food Administration and United States Department of Agriculture. Accept our solemn pledge of utmost endeavor for maximum crop production this year.

"San Joaquin County Farm Bureau,
"J. M. Bigger, *Prest.*"

To this telegram Secretary Houston sent the following reply:

"Dear Mr. Bigger: I have your telegram of February 9, pledging, on behalf of the San Joaquin County Farm Bureau, the utmost endeavor for maximum crop production this year. It is very gratifying to receive such expressions of cooperation and support. The farmers of the Nation responded very generously during 1917 to the appeals for increased production, and it is essential that their record of last year shall be duplicated and, if possible, exceeded. I am sure they will continue to put forth their best efforts in order that there may be available a large supply of foodstuffs and feedstuffs, not only for this Nation, but for the nations with which we are associated in this war. The department stands ready to assist them in every feasible way."

The use of wood fuel as a war substitute for coal offers a splendid opportunity for owners of woodlands to improve them by cutting out the dead, dying, or defective trees.

BOLL - WEEVIL WARNING.

No Reason to Believe That Cotton Pest Has Been Frozen Out—Caution to Farmers.

It is extremely unwise for cotton farmers to assume that the freezes of the last few weeks have exterminated the cotton-boll weevil, says the United States Department of Agriculture, in answer to many inquiries from the South.

Enough Weevils Survive to Restock Cotton Field.

During the past winter the temperatures have been lower than at any time since 1899, and there can hardly be any doubt that this extreme cold has reduced the numbers of weevils in many sections of the South. The impression has been gained by many planters that the weevil has been reduced to neglible numbers, if not altogether exterminated. It is too much to expect that the temperatures have been uniformly cold enough to absolutely exterminate the weevil from large areas. The records of the Department of Agriculture indicate that there is at least from 1 to 5 per cent survival of the weevil in those sections which have been thoroughly studied, as against a normal of 7.6 per cent survival. This percentage of surviving weevils is sufficient to restock the cotton fields of the South before the end of the growing season.

Instinct Leads Weevil to Warm Shelter.

There is always a possibility that there may be some specially sheltered spots even in the more northerly infested regions where some weevils will be able to survive. The instinct of the weevil leads it to seek the warmest shelter available in the vicinity of its breeding ground. It will shelter itself under the bark of trees, or in thick hanging moss upon the trees, under the thatch of roofs, in straw stacks, in seed storehouses and gins, and in other buildings. It is therefore quite easy to see that no matter how cold the external temperatures are there is always a probability that there will be weevils surviving in each field sheltered securely enough to carry them through the winter.

Weather Conditions Affect Weevil Injury.

The experience of 25 years with the boll weevil in this country has shown that one or two weevils surviving in a field can easily produce enough offspring to destroy all but the earliest portions of the crop.

No reliable prediction can be made on the basis of what happened during the winter. Frequently seasons in which very few weevils pass the winter have been followed by great injury to the crop by the weevil. This has been due to favorable conditions brought about by heavy rains during the early part of the growing season, which permitted the weevils to overcome their losses during the winter, or to early dispersion of the weevils from the warmer sections of the cotton belt, and sometimes to severe tropical storms which frequently sweep over the Gulf States. It is therefore apparent that the conditions of the spring and summer will largely determine the extent of damage due to the weevil, rather than the number of weevils which survive in a given locality.

Safe Farming Is Patriotic.

In the opinion of the Department of Agriculture it would be very unfortunate if the prevailing impression concerning the boll weevil should increase the acreage of cotton at the expense of food crops. At the present time what is most urgently needed throughout the South is an increased production of food and feed crops. There is every indication that the normal acreage in cotton, with proper cultivation, will give a supply of the staple sufficient for all purposes. It is clearly a matter of patriotism as well as sound judgment for the planters to increase the acreage in food crops. The planter who increases his cotton acreage can not be assured that his crop will not suffer greatly from the boll weevil attack, and will be utilizing his land in a way which does not best serve the necessities of the country.

South Must Feed Itself.

Director General McAdoo has already issued a warning that transportation difficulties in 1918 may make it difficult, if not impossible, to supply food and feed promptly to communities that neglect to provide their own necessities. To say the least, the drain on transportation is so heavy that any exceptional requirements for hauling food and feed to the South will be an actual embarrassment to the Government in the prosecution of the war. The Department of Agriculture is not asking the South to contribute materially to the Nation's food and feed supply, but is asking the South only to feed itself so that it may not become a burden upon the food-producing sections of the country which must strain their energies to the utmost in order to feed the armies and maintain the civil populations behind them.

It is the patriotic duty of every citizen who is in a position to do so to invest in War Savings and Thrift Stamps and thereby help the Nation to win this war. The purchase of even a twenty-five cent Thrift Stamp is a definite contribution to this end. War Savings and Thrift Stamps foster the habit of thrift in small expenditures, make it possible for nearly everyone to purchase what are in reality small Government bonds, and offer a unique opportunity to the people at once to help their Government and to economize conveniently for the purchase of the best investment securities in the world.

To win this war we must have both men and money. I know that every farmer wants to do everything in his power for the Nation in this day of trial. He will not only labor to produce the necessary foodstuffs but will also generously contribute of his means to make it possible for the men at the front to achieve victory. I am confident that the farmers of the land will not permit any other class to take the leadership in supporting the Government in this crisis, financially or otherwise.

D. F. Houston

SAVING SOFT CORN ON THE FARM.

Sorting all the corn now stored on the farm and putting ventilators in the cribs will help save the soft corn when warm weather comes, says the United States Department of Agriculture. While corn at the top, bottom, or sides of the cribs may be in fair shape, the corn in the middle of the cribs may be heating badly and spoiling, Examine the corn in the center of the cribs and take out all cob-rotten and spoiling ears, cautions the department, for if they are left in the crib they will rapidly damage the good ears around them.

Ventilators should be put in before refilling the cribs, unless they have already been provided. Improvised ventilators can be made of planks or rails held apart with slats, or they can be constructed in some other suitable manner, and should run completely through the cribs from the outside so that the air can circulate as freely as possible through the corn. Air spaces every 4 feet throughout the crib are recommended.

The Department of Agriculture is making a survey of soft corn in the country elevators to assist the railroads in placing cars where they are needed to move the corn to consuming and drying points in order to save it.

Thoughtfully planned, conveniently arranged, and carefully constructed buildings are as essential in the country as in the city.

Dog depredations to flocks of sheep are not only disheartening and discouraging to the flockmaster, but they also break up breeding plans and render flocks restless and nonproductive.

FOOD FROM THE FOREST.

Native Trees and Shrubs Furnish a Large Variety of Fruits, Nuts, and Other Edibles.

It is said that Daniel Boone and some of our other early pioneers conld go into the wilderness with only a rifle and a sack of salt and live in comfort on the game and other wild food which the woods afforded. While few people want to try that sort of thing nowadays, persons who know the food value of the fruits of our native trees and shrubs are, according to foresters, able to use them to good advantage in supplementing other foods.

Nuts First in Importance.

Aside from the numerous edible mushrooms, roots, fruits of shrubs and smaller plants, the trees of our forests afford a large variety of edibles which are highly prized by woods connoisseurs. First in importance, of course, are our native nuts—beech nuts, butternuts, walnuts, chestnuts and chinquapins, hazel nuts, and several kinds of hickory nuts, including pecans. The kernels of all of these are not only toothsome but highly nutritious and are used by vegetarians to replace meat. The oil of the beech nut is said to be little inferior to olive oil, while that of butternuts and walnuts was used by some of the Indians for various purposes. The Indians, it is said, also formerly mixed chestnuts with corn meal and made a bread which was baked in corn husks, like tamales. In parts of Europe bread is made from chestnuts alone. The chestnut crop in this country is being reduced each year by the chestnut-blight disease which in some sections is gradually killing out the trees.

Pines Furnish Edible Seeds.

Several western pines have seeds which play an important part in the diet of the local Indians. Perhaps the best known of these is the fruit of the nut pine or piñon, which forms the basis for a local industry of some size. Not only is it extensively eaten by local settlers and Indians, but large quantities are shipped to the cities in regions where they grow and the roasted seed is sold on the street. The similar seed of the Parry pine and the large Digger pine seeds are eagerly sought by the Indians. The latter tree is said to have gained its name from its use as a food by the Digger Indians. The seeds of the longleaf pine are edible and are improved by roasting. Indeed, it may be said that most nuts are more palatable when roasted than if eaten raw.

Bread from Acorns.

Acorns are commonly thought to be fit only for feeding hogs, but many kinds of them are either sweet enough to eat or can be made edible from an Indian standpoint and have been used as food, particularly when other foods were scarce. The Indian custom was to pound or grind the acorns np and by treating the pulp with water leach out the tannin, which makes most sorts unfit for eating as they grow. The resulting flour, which contained considerable starch, was made either into a porridge or baked in small cakes. Indian acorn bread is dark in color and to most of us would not seem palatable. As a rule the acorns of the various white oaks having less tannin are the ones best suited for food, bnt Indians also used those of the black oaks, even though they contain much tannin. The acorns of the basket or cow oak, the chinquapin oak, shin or Rocky Mountain oak, live oak, and of several other species, are sweet enough to be eaten like nuts.

Another nut which is not suited for eating as it grows, but from which a food is said to have been prepared by the Indians, is the buckeye. The kernels of these nuts were dried, powdered, and water was filtered throngh them to leach out the poison which they contain. The resulting paste was either eaten cold or baked. Attempts have been made in Europe to utilize the horse-chestnut as food, but they have not come into use.

Many Useful Fruits.

One of the best-known fruits, the foresters say, is the persimmon, which is edible only after it is thoroughly ripe. As this is usually not nntil late in the fall, it is commonly thought that the fruit must be frost-bitten. If the persimmon is eaten before it is well ripened, the tannic acid which the fruit contains has a strongly astringent effect, which justifies the story of the soldier in the Civil War who said he had eaten green persimmons so as to shrink his stomach up to fit his rations. The pawpaw, a fruit akin to the custard apple, is also best when thoroughly ripe. Studies of this fruit and its uses have been made by food experts of the United States Department of Agriculture. The fruit of some species of haws is eaten or preserved in different parts of the country, while those of several different kinds of wild cherries and wild currants have a food value and are used for various purposes. Wild plums are abundant in certain sections and occur in particularly plentiful quantities along the streams in the Eastern and Middle Western States. Beach plums are also used for food purposes.

Several varieties of wild crab apples make delicious jellies. Some of the largest, which attain the size of small apples, are more or less abundant throughout eastern North Carolina. Elderberries are frequently used for pies and for sauce. Those found in the West are sweeter and have a better flavor than the eastern varieties.

The berries of the hackberry, or sugar berry, as it is called in the South, are dry but have an agreeable taste. Those of the mulberry are sweet and juicy when ripe. The mulberry is valued in some sections for feeding hogs and poultry and some species are occasionally cultivated.

Many people like the fruit of the shad bush, "sarvice" berry, or June berry, as it is variously called. In parts of the country this fruit is used to make jelly.

Edible Buds, Flowers, and Seed Pods.

The French Canadians are said to use the acid flowers of the redbud, or Judas tree, in salads, while the buds and tender pods are pickled in vinegar. Honey locust pods, often locally called "honey-shucks," contain a sweetish, thick, cheeselike pulp, which is often eaten. The blossoms of the common white locust also are sometimes used for making fritters in parts of the United States. Those of the mesquite furnish the Mexicans and Indians with a nutritious food. The Creoles of Louisiana, famous for their cookery, use the young buds of the sassafras as a substitute for okra in thickening soups.

STOP LOSS OF 150,000,000 EGGS.

Over 150,000,000 eggs will be lost to the food supply of the United States if the old practice of sending hens to market at this season is continued. Figures compiled by the poultry specialists of the United States Department of Agrieulture show that more than 5,000,000 laying hens, each capable of produeing 30 eggs, are sent to market from the Southern States in the winter and early spring.

Every effort, therefore, is being made to encourage farmers to keep their hens until after the spring laying season, thereby getting a dividend for keeping the hen through the winter. The specialists point out that when a hen is sold for meat early in the spring, the farmer gets no egg return for feeding and keeping her through the worst months of the year.

Moreover, the hen is marketable as poultry after she has produced her spring eggs. Poultry in May may bring 2 cents a pound less than it does in February, but, they point out, the 30 eggs produced by the hen, largely from wastes, more than offset any reduction in the price offered for live poultry.

An energetic egg-saving campaign to prevent early slaughter of the hen that "lays the golden egg" is now being conducted throughout the Southern States. North of the Ohio River farmers have long appreciated the advantage of getting the spring crop of eggs and marketing their hens after the laying season or in the fall. They believe that adoption of this plan by southern chieken raisers will be profitable and will materially add to the food supply of the Nation.

FARM PRODUCTION.

Estimated Gross Value of Wealth Produced on Farms in 1917 Exceeds Nineteen Billion Dollars.

Following the items of the census of 1910, the United States Department of Agriculture has estimated the gross value of the wealth produced on farms in 1917 to be $19,444,000,000. This is divided into a total of $13,611,000,000 for all crops and $5,833,000,000 for animal products and animals sold off farms and slaughtered on farms. Such totals as these, even though they represent gross values, would have been regarded as fabulous before 1916.

The census total of wealth production on farms is $2,500,000,000 for 1889, $4,700,000,000 for 1899, and $8,600,000,000 for 1909, and the estimate for 1915 is $10,800,000,000. These numbers, being dollars and not quantities of product, are the resultant of two factors, production and price, and hence, as gauges of the productiveness of the agricultural industry, may be above or below the fact.

Anticipates Calendar 21 Years.

In the ordinary course of events, many years must have elasped before the products of farms would reach the stupendous aggregate gross value of 1917. The average increase per year from 1889 to 1899 was $226,000,000; from 1899 to 1909, $384,000,000; from 1909 to 1915, $370,000,000; and from 1899 to 1915, 16 years, $379,000,000. At the average annual rate of increase for the 16 years, not until 1938 would the gross value of 1917 be reached, computed as an increase over 1915. Mainly due to increase of price since 1915, the calendar has been anticipated by 21 years.

In the continuous annual record, extending back 21 years, 1911 is the only year with a decline in total gross value of farm products when compared with the preceding year, and that year was one with low production. A year that hardly exceeded the preceding one was 1914, when the price of cotton was demoralized by the war. By the end of 1915 the prices of most farm products were still nearly on the plane of 1914, with crop production 7 per cent above; and the total gross value of farm production was $10,775,000,000, a gain of nearly a billion dollars over either 1913 or 1914.

Rapid Increase of Farm Prices Past Two Years.

Then followed a rapid ascent of prices of farm products, and the weighted index for the prices of principal crops in December, 1916, was 56 per cent above 1915, so that, although crop production was 14 per cent less, the total gross value of farm production was $13,406,000,000, or 25 per cent above 1915, itself the topmost year at that time.

The performance of 1916 in farm wealth production, unprecedentedly large though it was, was a puny precursor of 1917. The price index number of the principal crops of this year is 35 per cent above 1916 and 111 per cent above 1915, and complicated with this enormous factor is a crop production that is 12 per cent above 1916. Hence it is that the grand aggregate of $13,611,000,000 is reached as the gross value of the farm crop production of 1917, and of $19,444,000,000 as the total of all production.

Caution is given by the Department of Agriculture against accepting this total of $19,444,000,000 as the amount of the farmers' cash income, and also against regarding it as a net income. There are duplications and triplications of value and also omitted items; cost of production must be considered, and certainly for 1916 and 1917 a soaring cost has complicated the problem. It is a gross income in a vague, undefinable, intangible sense, which can not be reduced to a net income, nor net wealth production, by any process.

WOOD FUEL RESERVE.

Make Provision for Plentiful Supply of Firewood for Next Winter.

An ample wood fuel reserve for next winter should be the aim of every city, town, and country resident. No one knows how much coal there will be for general fuel purposes. An abundance of coal seems unlikely. Coal is particularly needed for war industries, shipping, and the allies. Communities can render themselves far less dependent on coal and also help in relieving an overburdened transportation by laying in a plentiful supply of well-seasoned firewood.

Municipal Woodyards Successful.

Municipal woodyards have been started in many towns and cities and are working very successfully. North Carolina has between 40 and 50 of them. Such a woodyard operated by the municipal officers or private companies should be in operation all spring and summer in every town where wood can be obtained, building up a fuel reserve for next winter. War fuel companies have been organized in the towns in New Hampshire, Tennessee, and some other States. Those responsible for the government of towns and communities should take steps at once to guard against difficulties when the next cold weather comes.

It is a matter of common knowledge that in many localities where wood is abundantly available, almost at the very doors of the farmers, coal has been hauled from 5 to 10 miles to supply them. This has meant in many cases the deprivation of cities of coal which could not secure wood and has caused much hardship and suffering. Cooperative action on the part of communities and towns during the past winter has been eminently successful in many places in the eastern United States, bringing much wood into use and at prices ranging mostly from $5 to $8 per cord for stove wood delivered, thereby eliminating "profiteering" of amounts ranging up to as high as $9 to $12 per cord.

WAR FUEL SLOGANS.

Keep up with the war program—burn wood.
Cut a cord and help win the war.
Save coal for munition industries by burning war fuel.
Now is the time to cut wood.
Coal is scarce—there's "wood to burn."
Wood is wartime fuel—cut it and burn it.

Chop Wood on Spare Days.

Much can yet be done this spring in the Middle and North Atlantic and Lake States. In the Southern States where crop work is pretty well along, only an occasional day can be devoted to this work. A big drive for winter wood fuel is being planned for the South beginning in August when crops are "laid by." Every rainy or idle day and every other day that can possibly be spared should be used in chopping wood in order to have on hand a supply of seasoned wood. The Forest Service and the States Relations Service of the Department of Agriculture and the various State colleges of agriculture are cooperating with the Federal Fuel Administration in this nationwide wood fuel campaign.

A rank growth of weeds becomes an asset when plowed under before they make seed.

A hood suspended over the kitchen range and connected to the flue in the chimney will gather all the steam and odors and carry them away.

There are many advantages to a single pitch roof on the poultry house. This type is most easily built. It gives the highest vertical front exposed to the sun's rays and throws all of the rain water to the rear.

The continued high prices of mutton and lamb have made it desirable that more sheep be kept on the farms of the United States. In many parts of the country there are large areas of rough land, weedy lots, and grown-up fence rows which afford an excellent opportunity for feeding sheep.

POTATO SPRAYING PAYS.

This Is Shown by Cooperative Experiments Conducted at Aroostook Farm in 1917.

Some potato growers have expressed the opinion that it does not pay to spray potatoes for late blight. They claim that when the weather conditions are such that the disease is severe, spraying does not control it sufficiently to give an appreciable increase in yield, and also that in seasons when the attack is light the increase in yield from spraying is not sufficient to cover the added cost. Consequently they maintain that spraying is unprofitable at any time.

That thorough spraying will control late blight in seasons of bad infection has been proven many times in the past, and most recently in Aroostook County, Me., in 1917. Among other places in the county, this was shown conclusively at Aroostook Farm, where extensive experiments were conducted by the United States Department of Agriculture, in cooperation with the Maine Agricultural Experiment Station.

Late Spraying Increases Production from 26 to 36 per cent.

In one block where small test plots sprayed with standard Bordeaux mixture were interspersed with untreated check plots, the average yield on 11 of the former was at the rate of 181.2 bushels per acre, while that on an equal number of untreated plots was at the rate of 143.5 bushels per acre. This was an increase of 37.7 bushels per acre, or more than 26 per cent in favor of Bordeaux mixture.

In another similar block the average yield of five plots sprayed with Bordeaux mixture was at the rate of nearly 237 bushels per acre, while that of the four untreated check plots in the same block was 174.3 bushels. The gain here was 62.5 bushels per acre, or about 36 per cent, due to spraying. Six applications were made on all the above-mentioned sprayed plots.

On these experimental plots, spraying ought to have been started 10 days or two weeks sooner, or by the end of the first week in July. In spite of this fact, the yields given above indicate quite plainly that spraying paid. Moreover, many persons who saw the plots during the latter part of the season have testified to the striking differences on sprayed and unsprayed portions. On all the treated plots the spraying was done with a traction sprayer which maintained a good working pressure of at least 150 pounds per square inch.

Early and Continued Applications Gave Increases of 53 to 86 per cent.

Adjoining one of the experimental blocks was a field where spraying was begun earlier and eight or nine applications were made. It was planted with the same lot of the same variety of seed, fertilized the same, and, except for spraying, received similar treatment in every respect. The yield on the portion of this field immediately adjoining one of the unsprayed check plots was 267.3 bushels per acre. Comparing this with the averages of the unsprayed check plots mentioned above, shows a gain of 123.8 and 93 bushels per acre, respectively, or over 86 and 53 per cent. In none of the above figures is any account made of the extra loss resulting from tuber rot in storage in the crop produced on the unsprayed plots.

Nineteen hundred and seventeen was one of the worst blight years in the history of Aroostook potato growing. The results cited above show conclusively that, even under the conditions that existed, late blight can be controlled by a grower who sets out to do the job thoroughly. Moreover, they indicate that it can be done at a fair profit when the cost is considered in connection with the value of the increased yield resulting from the treatment.

These recommendations apply particularly to the potato sections lying north of a line drawn from New York to Chicago.

THE BACK-YARD FLOCK.

Breeds Best Suited to Conditions—Where to Buy and How to Select.

Hens of the medium-sized breeds—Plymouth Rocks, Wyandottes, Rhode Island Reds, and Orpingtons—are best suited to back-yard conditions. Large hens kept in close confinement are likely to get too fat to lay well. Small, nervous hens are apt to develop such vices as egg eating and feather eating. The bad tendencies mentioned do not prohibit the keeping of large and small breeds in small back yards, but makes it necessary for the keeper to use extraordinary care to keep them in good condition and productive. White and light-colored varieties are not desirable for small back yards, because their plumage soils too easily.

Where to Purchase Stock.

As a rule it is most satisfactory to buy hens of a local poultry keeper or dealer in live poultry. Desirable small flocks are frequently offered by people who are obliged by change of work or of residence to sell their poultry. Dealers in live poultry everywhere sort out from their general receipts the hens that show good breeding and quality to sell to back-yard poultry keepers. When satisfactory stock can not be obtained locally, the advertising columns of poultry papers, agricultural papers, or newspapers that carry poultry advertising should be consulted, and the hens bought from the nearest breeder who can supply what is wanted at a reasonable price.

Select Utility Hens.

For the back-yard flock kept to produce eggs only, it is not necessary to have hens of extra good standard quality. What breeders of standard poultry call choice utility hens are as good as any for egg production and cost but little more than ordinary mongrels. Hens of this grade in the medium-sized breeds are usually a little under standard weights, and have superficial faults, as unsoundness of color, or irregularity of markings or of the shape of the comb, which in no way affect their laying capacity, but make them unfit for exhibition and undesirable for breeding purposes.

Note Condition of Birds.

When buying hens in person particular attention should be given to the general condition—whether the bird seems vigorous and lively, and to the appearance of the comb and the condition of the feet. Healthy hens have bright red combs and bright eyes. A slight paleness of the comb is simply an indication that the hen is not laying at the time; but a bird whose comb has either a yellowish or a bluish cast should be rejected, for these are symptoms of internal disorders. The skin and scales of legs and toes should be smooth, and the soles of the feet soft and free from corns.

CULTIVATE ENEMIES OF MOTHS.

Everything possible to introduce and encourage parasites and natural enemies of the gipsy moth and brown-tail moth is now being done by the Bureau of Entomology of the United States Department of Agriculture, in cooperation with the State of Massachusetts. Several natural enemies, secured from Europe and Japan since 1905, have become firmly established in this country and are assisting in bringing about the control of these species. The most effective enemies of the gipsy moth and brown-tail moth are the Calosoma beetle, a tachina fly, and a minute four-winged wasplike parasite. Two tiny parasites of the eggs of the gipsy moth also have been colonized and are valuable additions to the natural enemies of this insect. The records at the gipsy-moth laboratory at Melrose Highlands, Mass., indicate that all of the species of insect parasites mentioned have been gradually increasing in the field and that the results of their work are very noticeable in certain restricted areas.

Grading potatoes for market increases the possibilities for sales and raises the price received. Keep the culls en the farm and save the cost of hauling.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MARCH 20, 1918. No. 33

PROFITEERING IN SEEDS.

Information is coming constantly to the United States Department of Agriculture and the Food Administration that abnormally high prices for seeds are being charged in some sections. The need for *increased* crop production is *obvious*, and without adequate distribution of seed at reasonable prices there is danger that acreage will be lessened and that seed of poor quality will frequently be used. If such conditions were to develop it would seriously impair our national food program.

The supply of many kinds of seeds is not as large as is desirable, and in view of this fact as well as because of the increased cost of conducting business some increase in the price of certain seeds may be warranted. This, however, does not justify anyone in taking selfish advantage of the opportunity to the detriment of the country. By far the larger number of dealers no doubt will consider that their patriotic duty in this emergency is to aid the Nation in securing adequate stocks at a reasonable price, consistent with the extra service rendered this year in securing tested and satisfactory supplies. Anything beyond this becomes plainly an unfair practice and therefore subject to any action which such practices invoke. Speculation in seed stocks is especially to be deprecated in this hour of need, and if participated in by dealers under federal license for the conduct of their business will be dealt with accordingly.

Several State seed growers' associations have voluntarily agreed to handle their seed with due regard to the public welfare by charging only a reasonable price for them, although doubtless the demand for seeds would permit much higher prices. Such patriotic action is to be commended.

The War Service Committee of the American Seed Trade Association also has passed a resolution in which this committee agrees to "cooperate in denouncing unreasonable and excessive profits or in taking other necessary steps."

All wholesale seed dealers and those retail dealers in seeds doing an annual business of $100,000 or over, who handle peas, beans, cotton seed, and corn are now operating under license from the Food Administration. Instances have been cited to the department where others have been taking advantage of the present situation by charging exorbitant prices for seeds.

Upon receipt of specific information of extortionate prices being charged for seeds, such cases will be investigated and recommendations made for such action as the conditions require.

D. F. Houston

Secretary of Agriculture.

Herbert Hoover

Food Administrator.

SEED-CORN PRICES.

The attention of the Department of Agriculture has been called to occasional high prices that are being charged for seed corn in certain localities. The department recognizes that the seed-corn shortage would have an adverse effect upon the production of corn in 1918, and that the price of seed corn has an important bearing on the maintenance of acreage. Emphasis has been placed on the conservation of an ample supply of seed regardless of expense and effort to obtain it. It is not the intention of the department to indicate as unreasonable, prices that are necessary to provide a fair return for all efforts that have been made to conserve seed. A fair price should be determined by the actual service performed in obtaining and conserving such seed.

Certain sections of the country, particularly east and south of the main corn belt, were more favored than the others by the fall conditions of 1917. The territory including Ohio, Indiana, Illinois, northern Missouri, northern Kansas, and all the States north of these suffered most severely. Other sections of the country apparently can provide for their own requirements without great difficulty, and therefore relatively lower prices in those sections should prevail.

The Food Administration has announced its intention to take such action as may be necessary to prevent speculation or profiteering on the part of seedsmen. Upon receipt of specific information of extortionate prices being charged for seeds, such cases will be investigated and recommendation made for such action as the conditions require.

D. F. Houston

Secretary of Agriculture.

CARE OF SOW AND PIGS.

How to Manage the Sow at Farrowing Time—What to Do When the Pigs Arrive.

As the time for farrowing approaches, the sow should be watched carefully, in order that assistance may be given if necessary. The sow generally becomes nervous and restless as parturition approaches; she makes a nest for her young; a swollen vagina and milk down in the teats are other visible signs. One can be quite certain that a sow will farrow late in the afternoon or the following night when milk is found in the teats in the morning.

The feed at this time should be sloppy and limited in amount. Nothing but lukewarm water should be given the sow during 24 hours previous to farrowing. If she has already farrowed a litter and has been properly fed and cared for during pregnancy, little difficulty may be expected. With young sows, particularly those bred at an immature age, there is considerable risk at this time, not only to the pigs but to the sow herself.

There is a difference of opinion as to the amount of bedding which should be given to the sow at this time. An active sow in comparatively thin condition can be trusted with a liberal amount of bedding, but sows which are in high condition or which are at all clumsy, had better be given only a moderate amount of bedding. Leaves or short straw are preferred.

The farrowing pen should be dry and well ventilated, but free from drafts. Provide the pen with a guardrail made of 2 by 4 planks with their edges against the sides of the pen about 10 inches above the bed. These prevent the sow from lying against the partition, and lessen the danger of injury to the pigs. The little fellows will soon learn to creep under the guardrail when the sow lies down.

The management of the sow during farrowing depends largely on the animal and on the weather conditions. Assistance should be at hand if needed, but the sow need not be helped if she is getting along nicely.

What to Do When the Pigs Arrive.

When the pigs are born during warm weather, they are less liable to become chilled and will generally find their way to the teats unaided. In extremely cold weather the pigs will be in danger of being chilled, unless the hog house is heated. To remedy this, place a few heated bricks in the bottom of a basket or small box, covering them with chaff or straw, and put a cloth over the top to keep in the heat; unless the sow objects too seriously, the pigs may be rubbed dry with a soft cloth and placed in the receptacle as fast as they arrive. If any of the little pigs appear to be lifeless when they are born, first see that all mucus is removed from the nose, then give the pig a few gentle slaps on the side with the hand. This will start the pig breathing if there is any life in the body. Give it a suck of the sow's milk and place it in the receptacle, as described previously. The pigs will not suffer if they do not suck for a few minutes after farrowing.

Cut Out the Black Teeth.

Before placing the pigs with the sow, cut out the eight small tusk-like teeth. There are four of these on each jaw in the rear of the mouth. These teeth are very sharp, and if left in the pig's mouth they will likely cause tearing of the sow's udder, and the little pigs cut one another's mouths while fighting for a teat. These teeth can be removed with bone forceps, wire nippers, or with a knife. Never pull out the teeth. Always cut or break them off. After this operation is over, place the pigs with the sow, care being taken that each one gets to a teat. When the afterbirth is passed, it should be removed from the pen at once and buried or burned. There is good reason to believe that eating the afterbirths is often the beginning of the habit of eating pigs.

As a rule, the sow should have no food the first 24 hours after farrowing, but should be given a liberal drink of warm water. If, however, she shows signs of hunger, a thin slop of bran and middlings may be given. The feeding for the first 3 or 4 days should be light, and the time consumed in getting the sow on full feed should be from a week to 10 days, depending on the size and thrift of the litter.

The Sow's Feed.

Great care must be taken to feed the sow properly. If she is not being properly fed, the little pigs will show it. If the pigs follow the sow around very much and pull at her teats, it is a good sign that she is not giving enough milk, and more feed should be given to stimulate the milk flow. When a sow is overfed, causing a heavy flow of milk, scouring is generally produced in the pigs. If this happens, cut down the sow's feed immediately. Give the sow 15 to 20 grains of sulphate of iron (copperas) in her slop morning and evening, and if necessary increase the dose until results have been obtained.

Exercise Is Necessary.

After the sow has farrowed, it is best for her to be in the open air. Of course, if the pigs are farrowed during the winter months, care will be needed, and it may be necessary to let the pigs reach the age of two weeks before turning them out. They can, however, get considerable exercise in the piggery or in the lot with the sow, and there is often a lot adjoining a barn that is sunny and sheltered from the cold winds, where the sow and pigs may be turned for exercise. Do not allow the pigs to run out during a cold rain.

If they do not get exercise, they will get fat and lazy and the usual result is the "thumps." This is caused by the fat getting so thick around the heart and lungs that the pigs find it difficult to breathe. The best way to prevent this is to avoid overfeeding and make the young pigs take plenty of exercise.

RESEEDING WINTERKILLED OATS.

The unusually long, cold winter has caused much winterkilling of fall-sown oats in the Southern States. Since the yield from fall-sown oats is so much better than from spring sown, it will not pay to resow to spring oats unless considerably more than half the fall-sown oats were winterkilled, states the United States Department of Agriculture. It has been observed that when stands are thinned considerably, the remaining plants produce more tillers, and give more nearly a normal crop than the stand would indicate. It would be advisable to delay reseeding a short time until it is possible to determine definitely whether or not there is a sufficient stand to justify leaving the crop to mature. Where it is certain that the fall-sown oats were destroyed by cold, spring oats may be sown with fair prospects for a profitable crop if the seeding is done in early March. Only well-drained, fertile land should be sown to spring oats, as profitable yields will not be obtained from this crop from spring seeding on poor land. On medium fertile land an application of acid phosphate at the rate of from 150 to 200 pounds per acre at time of seeding will be of benefit to the crop.

The best varieties for spring seeding are Burt, Red Rustproof, Fulghum, and Appler. It is not advisable to plow the land. A seed bed should be prepared by disking or thorough harrowing, and the seed drilled in. Where a grain drill is not available the seed may be sown broadcast and covered by harrowing or dragging. Only the best seed should be used, which should be sown at a rate of about 3 bushels to the acre.

One of the first essentials to satisfactory marketing arrangements is standardized products. Cans, jars, and other containers should be uniform in pack, appearance, quality, and condition. Every container which is fully up to the standard represented by the label or brand will then be an advertisement in itself and often a guaranty to further purchases.

BUILDING UP SOILS.

Cropping Systems Which Supply Humus Prove Economical Way to Increase Fertility in Older Sections.

The big problem in connection with the improvement of many farm lands is to get organic matter into the soil, and do it economically. This is true of the Coastal Plains section of the Central Atlantic States where land has been farmed for generations. In a study of this section made by the Department of Agriculture, a report of which is published as Farmers' Bulletin 924, it was found that in every case where the fertility of the soil has been built up and crop yields materially increased, large quantities of vegetable matter have been added to the soil in one form or another.

Sources of Organic Matter.

In the farm practice of this region there are three principal sources from which humus or organic matter is usually supplied—farm manure, roots and stubbles left from crops, and green crops turned under. While live stock is not extensively grown, there are some farmers who depend chiefly upon the manure from live stock to make their land productive. Others depend upon the sod remaining from the grass and clover crops, with the use of some commercial fertilizers, while still others grow legumes to turn under as green manure. Many of the most successful farmers practice a combination of one or more of these methods. There are many instances where farmers have plowed under three crops of crimson clover in succession, and have brought the land up from a condition where it produced only 15 bushels of corn per acre to a point where it produced 50 bushels per acre. This indicates that as the organic matter is increased in these soils the yields increase also.

The need for a supply of organic matter, the bulletin says, should be met by growing such legumes as crimson clover, cowpeas, soy beans, red clover, and hairy vetch. Rye, buckwheat, and the grasses are also valuable in this section. By arranging the cropping system to include one or more legumes that supply the soil with nitrogen and humus, crop yields have been increased at little expense.

Why Organic Matter Is Valuable.

The presence of organic matter benefits these lands in several ways. It increases the bacterial activity so essential to crop production. Water is absorbed more readily during heavy rains, which lessens the danger from washing. Soils well supplied with organic matter are also more retentive of moisture, remain more friable, are easier to work, and are less likely to become hard or form a crust after rains. The chief source of nitrogen in the soil is from the breaking down and decay of the organic matter present. Since nitrogen is one of the most expensive fertilizers that the farmer has to buy, it is very important that every effort be made to supply this element by growing legumes or providing humus in other forms.

Some Good Cropping Systems.

The bulletin recommends some good cropping systems and gives examples of farm management which has been successful in maintaining and increasing the organic matter in the soil. One system that is commonly practiced is: First year, cowpeas followed by rye; second year, cowpeas followed by crimson clover; and third year, corn followed by crimson clover. On one Maryland farm a five-year crop rotation which, with the addition of a little commercial fertilizer, has maintained crop yields for over 30 years, consists of corn, wheat, clover for hay and pasture, wheat, and clover. On a Virginia farm a yield of 15 to 18 bushels of corn was secured every third year when the land was allowed to rest during the other two years. This farm was sown to cowpeas which were cut for hay, and the stubble disked and seeded to crimson clover. The following year the clover was turned under and the field planted to corn. At the last working of corn, crimson clover was again sown. This rotation of corn and clover was continued for five years. The third year 40 bushels of corn per acre were produced and the fifth year 50 bushels per acre were secured. On another Virginia farm where the continuous growing of corn and cotton had become unproductive, the use of crimson clover, cowpeas, and rye as green manure crops increased the productiveness of the soil. The fourth year after soil improvement was started 570 pounds of lint cotton and 40 bushels of corn were grown per acre.

CIVIL-SERVICE EXAMINATION.

Information Assistant (Male).

The United States Civil Service Commission announces an open competitive examination for assistant in the Office of Information, for men only. A vacancy in the Department of Agriculture, Washington, D. C., at an entrance salary ranging from $1,800 to $2,750 a year, depending upon the qualifications of the appointee, and future vacancies requiring similar qualifications, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

It is desired to secure a person with considerable experience both as writer and editor, preferably one dealing with agricultural subjects for a newspaper or periodical or who has been regularly connected in an editorial capacity with a publication publishing considerable popular material dealing practically with agriculture or technical subjects. It is necessary that he be able to comprehend the agricultural and scientific work being conducted by the investigators and experimenters in the Department of Agriculture and be able to put such matter into popular form so that it may easily be understood and appreciated by the layman and at the same time be convenient for the use of newspapers, farm papers, trade journals, magazines, etc.

Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated:

SUBJECTS.	Weights.
1. Practical tests	35
2. Education and experience	35
3. Published papers or magazine and newspaper articles prepared by the applicant (to be submitted with the application)	30
Total	100

The prerequisites for consideration for this position are:

Graduation from a college or university of recognized standing, and at least three years' experience as a writer and editor or assistant editor on the staff of a newspaper or periodical of prominence, including the writing and preparation in popular style of material on technical subjects, or in writing or preparing articles on agricultural or technical subjects for periodicals, in which may be included experience in preparing matter for the information service of an agricultural or technical institution or organization supplying material regularly to periodicals; or, for persons lacking such college education, at least one year's experience as above described for each year lacking of such college course.

Applicants must have reached their thirty-first but not their forty-fifth birthday on the date of the examination.

This examination is open to all male citizens of the United States who meet the requirements.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Cal.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical certificate, and must be filed with the Civil Service Commission, Washington, D. C., with the material required, prior to the hour of closing business on March 26, 1918.

HOW CORN SAVES WHEAT.

Investigations of the Bureau of Crop Estimates of the United States Department of Agriculture have placed the normal consumption of wheat in some of the Southern States, where little wheat is raised and the people eat much corn bread, at 4 bushels per capita, while the normal consumption in the United States is 5.3 bushels per capita.

If the people of the entire United States will substitute corn and potatoes for wheat to the extent that some of the Southern States do, says a department publication, the per capita consumption for the country may be lowered to 4 bushels, greatly increasing the quantity available for export to the American armies and the allies.

CARE OF SITTING HENS.

Birds Require Special Attention to Insure Maximum Hatch of Thrifty Chicks.

The kind of care and attention given a sitting hen during the process of hatching eggs plays an important part on the number and condition of the chicks when hatched. See that the hens are made comfortable on the nest; allow them to come off only once a day to receive feed and water. If there are any that do not desire to come off themselves, they should be taken off. Hens usually return to their nests before there is any danger of the eggs chilling, but if they do not go back in half an hour in ordinary weather, they should be put on the nest. Where a large number of sitters are kept in one room it is advisable to let them off in groups of from 4 to 6 at a time.

Keep Eggs and Nests Clean.

The eggs and nests should be examined and cleaned, removing all broken eggs and washing those that are soiled; in the latter case the soiled nesting material should be removed and clean straw added. Nests containing broken eggs that the hen is allowed to sit on soon become infested with mites and lice, which cause the hens to become uneasy and leave the nest, often causing the loss of valuable settings of eggs. In mite-infested nests, the hen, if fastened in, will often be found standing over rather than sitting on the eggs.

Many eggs that are laid in the late winter and early spring are infertile. For this reason it is advisable to set several hens at the same time. After the eggs have been under the hens from 5 to 7 days, the time depending somewhat on the color and thickness of the shells—white-shelled eggs being easier to test than those having brown shells—they should be tested, the infertile eggs and dead germs removed, and the fertile eggs put back under the hen. In this way it is often possible to put all the eggs that several hens originally started to sit on under fewer hens and reset the others. For example, 30 eggs are set under 3 hens at the same time, 10 under each. At the end of 7 days we find on testing the eggs from all the hens that 10 are infertile, which leaves us 20 eggs to reset, which we do by putting them under 2 hens, and have the remaining hen sit over again after she has sat only 7 days. In this way considerable time can be saved in one's hatching operations.

Protect Sitting Hens from Mites and Lice.

In order to secure greatest success and make the hens comfortable when they are sitting, great care should be taken to keep the nests free from mites. To do this effectively is not an easy task. If oil from crude petroleum, which is good for controlling mites, is sprayed freely about the house at that time it may soil the eggs and prevent successful hatching. Infested quarters, therefore, should be treated thoroughly before hens are set, so as to start them in nests which are absolutely clean. Beneath the straw of the nest a layer of lime and sulphur will tend to prevent mite breeding, and the entire nest may be dusted occasionally with pyrethrum. Broken eggs and the straw soiled by them should be removed promptly, as they tend to attract mites.

Medicated nest eggs, said to control poultry lice, are on the market. These consist largely of naphthalene. While this material will destroy lice when applied generally to the fowl, it is injurious to the hen's eggs as well as to the bird. If used in quantity, or if the medicated eggs are allowed to remain for some time beneath a hen, she may die as a result. Sodium fluorid powder, dusted on the fowl, or dissolved in water and used as a dip, is the best remedy for lice.

RENTING FARMS ON SHARES.

Contracts That Are Fair to Tenant and Landlord Discussed in Bulletin of the Department.

In answer to numerous inquiries from both landlords and tenants, asking for help in renting farms, the United States Department of Agriculture has recently published Bulletin 650, "Lease Contracts Used in Renting Farms on Shares," which is a report of the study of contracts used in various types of farming in every State in the Union. In making this study 258 representative types of contracts were examined, and 2,907 tenant farm survey records, including general and specified farming, were considered.

Share System Satisfactory.

Under average conditions, the specialists say, the share system is the most satisfactory. In the partnership formed by this plan, the landlord furnishes the land and the tenant the labor, and it is to their mutual interests that the farm be made more productive and profitable. As a rule all equipment, including tools, machinery, work stock, productive stock, and other work capital is owned in equal partnership. All expenses, including hired labor and taxes, are shared equally and the proceeds are divided half and half. Products taken for family use by either landlord or tenant are charged against the respective parties. In cases where the landlord furnishes more than half of the capital for stock or equipment, or where the land is naturally very productive, he is entitled to receive more than half of the proceeds, and a share that is fair to both landlord and tenant is agreed upon. On the other hand, where the tenant furnishes more than half of the capital, or the type of farming requires special skill or an unusual amount of labor, or the land is not productive, he should receive more than half of the profits.

Division of Profits Should Be Equitable.

In order to make the partnership most successful the division of profits should be fair to both parties. Any injustice tends to bring about friction between landlord and tenant, and leads to a lack of interest and disagreements which prove unprofitable to both parties. The wording of the lease, the specialists say, is a comparatively simple problem after the conditions essential to fairness have been agreed upon. Frankness is also important, and the contract should be prepared in a simple, specific, and readily understandable form.

Most farm leases run for one year, with the privilege of renewal at one or two months' notice. Usually the crop year, March 1 to March 1, is used. The share system involves considerable bookkeeping, but this is desirable on all farms and, in fact, most contracts specify that accounts be kept. Some farms are rented for a stipulated sum, the price ranging from $2 to $30 per acre, the average price being from $4 to $10 in the North Central States. A modified form of this system consists in paying a specified number of bushels of grain or bales of cotton, etc., in lieu of cash.

DAILY BUTTER REPORTS.

As a part of the war emergency work of the United States Department of Agriculture, a new series of dairy production reports are being issued. Among these are the daily butter market bulletins now issued in New York, Chicago, Boston, Philadelphia, and Washington. It is expected that soon this report will be issued also in other large cities. In addition to shipment information on receipts, origin, destination, and cold-storage movement of butter, comment on butter market conditions and wholesale and jobbing prices for butter in certain markets are given. Producers of butter are able to tell from these reports not only what price butter brought when sold by wholesalers but also what the retailer pays to the jobber. On the other hand, the consumer can tell about what the producer receives and what his retail dealer pays for the butter.

Kitchen walls should be painted so that they may be wiped with a damp cloth, making cleanliness possible without great demand on strength and without the disarrangement caused by whitewashing or calcimining.

DIVERSIFICATION PAYS.

Combination of Corn, Cotton, Pigs, and Peanuts Proved Profitable in Georgia Community.

The farmers of Brooks County, Ga., have proven in a most practical way that a diversified type of farming, with cotton retained as the chief single source of income, can be profitably developed in many parts of the South. For many years the farmers, particularly in the lower half of the county, have developed the swine industry and the production on the farm of the products consumed in the home to a point that has been equaled in but few places in the South. The United States Department of Agriculture in 1914 conducted a farm-management survey in this county, a report of which is published in Bulletin 648, which states that the type of farming found embodies features that might with profit be adopted in many parts of the cotton belt.

Hogs Next to Cotton.

Cotton continues to be the chief source of income in this section, but unlike many other localities in the South the next largest returns are accredited to hogs. Little of the crop land in this community is wasted. It is either made into pasture for hogs or cattle, or cultivated and put in corn and peanuts (usually grown together), cotton, watermelons, oats, rye, and other feed crops. On nearly every farm there is a good home garden.

The type of farming employed in this community, the report states, shows that the more highly diversified farms have a slight advantage over the others in the yields of crops, a considerable advantage in providing profitable employment for the work stock, and in returning larger profits per farm. The farms upon which the least diversification was practiced returned 15 per cent less profit than the average for the farms of similar size, while the farms practicing the most diversification returned 16 per cent more than the average.

Note of Warning.

In considering this question of diversified farming the bulletin sounds one note of warning. It states that wide departures from practices that fit economic factors at work in the community are likely to lead to financial disaster. The proper selection of farm enterprises is a large factor in determining the success of the business, and of equal importance is the combining of these enterprises in the proportion that best fit the local conditions. No abrupt changes, therefore, should be made unless the local conditions are changed by such factors as altered market conditions or the introduction of serious pests, and any change should have the most careful consideration of the farmer.

Increased Profits Through Larger Yields.

The report further points out that one of the surest means of increasing the profitableness of these farms is by increasing the crop yields. There is for each crop a point beyond which any further increase in yield can be secured only at a cost higher than the returns. On some individual farms in Brooks County this point of "diminishing returns" has no doubt been reached or exceeded, but in studying groups of farms it was found that on the average increasing the yields of any crop resulted in increased profits.

Keeping work stock employed is another important factor in the determining of farm profits. On farms that kept mules productively employed for only 62 days per year the cost of work stock was $1.70 per day, whereas on farms providing 172 days of productive labor the cost was only $0.72 per day. The farms that kept work stock economically employed did so by cultivating a sufficiently large area per mule. Thirty to thirty-five acres per work animal was found to be the most profitable on the light soils of Brooks County.

HAWAIIAN FRUIT PEST.

Travelers Can Aid in Preventing Introduction of Mediterranean Fruit Fly.

If you are planning a visit to the Hawaiian Islands put it down in your memory now that you are not to bring back any Mediterranean fruit flies. The United States Department of Agriculture, in a recent publication, asks the cooperation of travelers in preventing the introduction into North America of this destructive pest, which has been found by inspectors in fruits shipped or carried into this country. So serious is the menace of the fruit fly in Hawaii to the rich semitropical fruit-growing sections of this country that entomologists of the Federal Department are asking American travelers to assist the rigid quarantine measures in making as absolute as possible the barrier against this fly.

The publication designed to furnish information that will thwart the entrance of the Hawaiian pest into this country is Bulletin 640 of the United States Department of Agriculture, "The Mediterranean Fruit Fly," by E. A. Back and C. E. Pemberton, of the Bureau of Entomology. It describes this pest in detail and the damage it does in Hawaii to fruits, nuts, and vegetables. This fly attacks 72 kinds of fruits on the islands, and is particularly destructive because it is difficult to control.

Quarantine Against Hawaiian Fruits.

To prevent the fly from becoming established on the mainland of the United States, the Federal Horticultural Board has promulgated quarantine No. 13, which provides that its agents both at Hawaii and at the mainland ports of entry shall have strict supervision over all the fruits permitted entry to the mainland from Hawaii. This quarantine makes it unlawful for a person to ship or carry any fruit from the Hawaiian Islands except ordinary eating bananas, pineapples, taro, and coconuts, and these will not be passed by inspectors at ports of entry such as San Francisco, Los Angeles, or Seattle, unless they have been inspected by the Federal agents in Hawaii and bear a Federal certificate of inspection. Passengers and ships are permitted to take on board in Hawaii fruits of all descriptions for consumption while en route to the coast. All contraband fruits, however, must be eaten or destroyed before the ship comes within the 3-mile limit of the mainland. Otherwise the transporting company or the individual passenger, whichever is the offender, is subject to fine or imprisonment.

FREEZING INJURES CANNED GOODS.

Cold, unless it goes below the freezing point, seems to have no bad effect upon canned foods, says the Bureau of Chemistry, United States Department of Agriculture. A statement by the bureau in answer to numerous inquiries as to the danger of eating canned foods that have frozen, says:

"Most canned goods will stand a little freezing without appreciable change. Repeated freezing and thawing cause the foods to become flabby and gives a flat taste. Such a change, however, does not alter the wholesomeness or food value of the material, but it may change the texture, appearance, and palatability. The actual damage varies with the different kinds of canned foods and in general is somewhat similar to damage done by freezing the same food in the fresh condition.

"All canned goods, whether frozen or not, should be inspected for evidence of spoilage, due to leakage or insufficient processing. Such spoilage is indicated by swelling of the cans and by an unpleasant flavor or odor of the contents."

Straw and similar material gathers moisture, and when the litter becomes damp enough to be limp it is practically useless for fowls to scratch in for their grain feed. Scratching litter in the poultry house is essential, but it should be cleaned out and renewed frequently.

WHEAT AND FLOUR.

Total Commercial Stocks as Shown by Partial Tabulation of Food Survey of December 31, 1917.

The total stocks of wheat in commercial channels on December 31, 1917, as indicated by a partial tabulation of the food survey of the latter date, were approximately one-half as large as the commercial stocks on hand December 31, 1916, according to a statement just issued by the United States Department of Agriculture. In this connection it is pointed out that the commercial visible supply figures published by the Chicago Board of Trade show stocks on hand January 5, 1918, about 30 per cent of the commercial visible supply reported for January 6, 1917, while the visible supply reported by Bradstreet for January 5, 1918, was approximately 36 per cent of that reported for January 6, 1917.

The commercial stocks of wheat at the end of December, 1917, compared more favorably with those of a year earlier than did the stocks at the end of August, 1917, the holdings of December 31, 1917, being 50 per cent of those reported for the corresponding date in 1916, while the commercial stocks of August 31, 1917, were only 37 per cent of those for the same date in 1916. At the same time it is indicated that there was only a slight change in the relative importance of the commercial stocks of flour on the dates of the two surveys as compared with the corresponding dates a year earlier. On August 31, 1917, the commercial stocks of flour were about 75 per cent of the stocks reported on hand August 31, 1916, while on December 31, 1917, the stocks of flour were 70 per cent of those reported for the corresponding date in 1916. The total wheat crop of 1917 was approximately 650,000,000 bushels, as compared with 640,000,000 bushels for the previous year and with 806,000,000 bushels, the average for the 5-year period 1911–1915.

Final Figures for the Food Survey of August 31, 1917.

The final figures for the August 31, 1917, food survey show that the total commercial stocks of wheat on that date were 75,000,000 bushels, or less than a two months' supply, while the commercial stocks of flour were about 12,000,000 barrels, representing approximately a six weeks' supply.

Where Commercial Stocks Were Held on August 31, 1917.

The elevators, mills, and wholesale grain dealers held 88.4 per cent of the commercial stocks of wheat reported for August 31, 1917, and 35.8 per cent of the total commercial stocks of flour reported for that date. In the case of flour, retail dealers held 24.9 per cent, bakers 20.3 per cent, wholesale grocers 9.7 per cent, and storage warehouses 5.3 per cent.

Holdings by States.

Minnesota and California reported the largest commercial stocks of wheat on August 31, 1917, their holdings being 7,290,000 and 6,891,000 bushels, respectively, while Missouri, Illinois, and Kansas each held about 5,000,000 bushels. The combined holdings of these five States amounted to 28,000,000 bushels, or more than 45 per cent of the total for the United States. In the case of flour, eight States reported about one-half of the total stocks of the country, New York leading with 812,896 barrels, followed by Pennsylvania with 659,438, Illinois with 639,126, and Nebraska with 634,915 barrels, while California, Texas, Minnesota, and Missouri each reported about 500,000 barrels.

GUARD AGAINST FRUIT FLIES.

Destructive Insects from Foreign Lands Feared in United States.

Need for maintaining a strict guard against the foreign species of fruit flies—insects that resemble the familiar house flies, but that are prettily spotted and banded and colored—is set forth in a United States Department of Agriculture publication, "Danger of Introducing Fruit Flies in the United States," by E. A. Back.

The danger of introduction of these destructive pests is increasing each year, says the publication, because of the extension of commerce to remote corners of the earth. Travelers are asked to cooperate with the Federal agencies by making sure that they do not carry into American territory some innocent-looking fruit concealing the eggs that in a few years would add another enemy of the farmer and fruit grower of this country.

Twenty Species of Foreign Flies.

Investigations now in progress indicate that there are at least 20 species of fruit flies that might seriously affect the American food supply in the form of fruits and vegetables. The more important of these are the Mediterranean fruit fly, which is now causing havoc on all continents except North America; the olive fruit fly, at present a pest in all regions bordering on the Mediterranean, throughout northern, eastern, and southern Africa, and in western Asia; the melon fruit fly, which has stopped the free cultivation in the Hawaiian Islands of vegetables of the cucumber family, and is known to exist also in China, Japan, the Philippine Islands, Java, Tunis, northern Australia, Ceylon, and India; the Mexican fruit fly, known to occur only in Mexico, and so far kept out of the United States; and the papaya, West Indian, banana, pineapple, and Queensland fruit flies.

More than 50 per cent of the insect troubles of the American farmer might have been avoided, says the publication, had public opinion and a knowledge of insects throughout the world been sufficiently advanced in the early days of the Republic to have made possible the quarantine system that the Department of Agriculture, through its Federal Horticultural Board, has been perfecting since the passage of the Federal plant quarantine act of 1912.

NITROGEN FROM COAL.

Large Amount Would Be Reclaimed By Use of Modern Coking Process.

If all the coal now coked in this country were coked in modern retort ovens, which enable the saving of the by-product nitrogen, a supply of ammonium sulphate containing about 20 per cent of readily available nitrogen, amounting to nearly 900,000 tons, would be produced annually, say specialists in a separate from the 1917 Yearbook of the United States Department of Agriculture. This would go a long way toward supplying the unprecedented demand for nitrogen which is taxing the resources of the world.

Important Fertilizer.

There is a small percentage of nitrogen in all coal. When coal is burned in the beehive type of oven, this nitrogen escapes into the air. When the modern type of retort ovens are used, the nitrogen is recovered as a by-product combined with hydrogen in the form of ammonia. When treated with sulphuric acid, ammonium sulphate results, which is an important fertilizer ingredient. It is used largely in the preparation of mixed fertilizers, but in view of its solubility it could probably be advantageously used as a substitute for sodium nitrate as a top dressing, the specialists say.

In 1916 only about 325,000 tons of ammonium sulphate were produced from coal, as nearly two-thirds of the coke was burned in the wasteful beehive oven. It is gratifying to record, the report says, that the beehive type of oven is being replaced rapidly in recent years by the more modern type, and a steadily increasing percentage of coke is being made in a way which permits the recovery of this valuable and much needed by-product.

Do it now and cheerfully.

Keep the hens confined to your own land.

UNIFORM DOG LAWS.

Bulletin Outlines Suggested Model Statute for Adoption by States as Protection to Sheep.

The most effective method of dealing with the sheep-killing dog is through efficient legislation, says Farmers' Bulletin 935, "The Sheep-Killing Dog," issued by the United States Department of Agriculture.

Dog a Menace to Sheep Industry.

After pointing out that present world conditions make necessary an increase in sheep production, the bulletin presents facts to show that the sheep-killing dog is one of the gravest menaces faced by the industry. Men who have entered the sheep business and have failed to find it profitable are agreed that one of the greatest causes for their discouragement has been the dog that, ranging by night singly and in groups but usually in twos and threes, wounds, kills, or chases to death the peaceful animal for whose destruction they have formed a mania.

The bulletin says that uniform State dog laws, so enacted and enforced as to prevent damage to flocks by controlling and limiting the number of dogs and at the same time allowing the farmer greater leeway in protecting his flocks, will go far toward encouraging sheep raising and bring about a proportional increase in the number of sheep. With this in view a suggested outline for a State dog law, combining parts of various State laws with some added features, is given in the bulletin. Following is the suggested outline:

Suggested Outline of State Dog Law.

1. All dogs over six months old to be listed by the county tax assessor at the time of listing other taxable property. (A more complete list of dog owners is obtained in this way than is the case when the dog owners are required to list their dogs.)

Tax to be as follows:

One male or spayed female	$2
Each additional male or spayed female	3
Each unspayed female	5

Kennel licenses to be issued with restrictions.

2. Dog owners to pay their dog tax and obtain a dog license at the same time other taxes are paid, unless proof is furnished that the dog has been disposed of.

3. Counties to furnish metal tags bearing the registration number of the dog and the name of the dog's owner. (This would eliminate any question arising as to the owner of a dog found at large or in the act of worrying stock.)

4. Provide for the impounding and, after a reasonable term of impoundment, the humane destruction of dogs found at large without collars bearing license tags.

5. All dogs to be confined from sunset to sunrise unless under leash or under reasonable control of their owners.

6. Dogs found at large between sunset and sunrise to be impounded and owner notified. Owner to regain custody of dog on paying a fine for violation of the law.

7. Any dog, registered or unregistered, may be killed by anyone when caught in the act of chasing, worrying, injuring, or killing sheep. Dog owner to have no recourse for the killing of such dog.

8. Any dog found running at large upon the inclosed lands of a person other than the owner of the dog may be killed at the time of finding him by the owner of the land, his agent, tenant, or employee.

9. Stock owners suffering losses from dogs to report the same to the local justice of the peace. Justice of the peace to appoint a committee of two or three disinterested farmers residing in the locality where the loss has been incurred, to appraise the damages. Committee to give the sheep owner a certificate showing in detail what the damages consist of and the amount. Damages beyond the value of the sheep actually killed outright should be allowed. Farmer to present the certificate to county commissioners to be passed on at the next session.

10. Compensation to be taken from money derived from the dog tax. Access to be had to State fund if dog-tax fund is insufficient to pay all claims.

11. Dog owner to be held liable to the county for all money paid out by the county for damages done by his dog, plus all costs of suit.

12. Reward of at least $10 to be offered by the county for the identification and proof of a sheep-killing dog.

13. Owner of a dog known to kill sheep to be required to kill, or cause to be killed, such dog within 48 hours after notification under penalty of $5 and $1 per day thereafter until such dog is killed.

14. Sheep owner to be allowed to set out poison on his farm if he gives public notice of same.

15. Enforcement of the law to be the duty of every police officer in the State. State to furnish sufficient assistance, if necessary, to carry out all of the provisions of the act.

The bulletin also contains a digest of the existing dog laws of each State and presents the complete dog laws of Pennsylvania and West Virginia, which are given as being examples of modern laws which really offer protection to owners of sheep.

DOG LAWS NEEDED.

Wool and mutton are commanding higher prices than ever before and supplies of wool are being depleted so rapidly that it will take some time after peace is declared to restock the wool trade, says Bulletin 935, "The Sheep-Killing Dog," issued by the United States Department of Agriculture.

The United States is experiencing the greatest shortage of mutton and wool in the history of the country. It is the duty of the American farmer to increase the supply.

The sheep-killing dog constitutes one of the greatest menaces to the success of the sheep industry.

The dog not only kills sheep but keeps out of the sheep business men who are otherwise inclined to go into it.

The most effective method of dealing with the sheep-killing dog is through efficient legislation.

Notable progress has been made by several States in enacting good dog laws, and others are expected to take similar action.

No law, however well worded it may be, can be effective unless it is enforced and has the moral support of the people who are affected by it.

Uniform State dog laws are desirable.

POTATO BLACK HEART.

Caused by Overheating Cars to Prevent Freezing in Transit.

Shippers of potatoes who place stoves in the cars to prevent freezing are warned by the United States Department of Agriculture that overheating will ruin potatoes. Several carloads have recently been inspected which showed the condition known as "black heart." This is an internal blackening of the potato, caused by temporary overheating or by prolonged lack of ventilation at lower temperatures.

The center of the potato is jet black, quite moist, and flabby. The discoloration may occur as a ring in the center of the tuber, inclosing a gray or black area. In advanced cases the tubers show hollow, black-bordered cavities in the center. The discoloration progresses outward, and whenever it reaches the outside a rapid decay sets in.

Black heart is produced when potatoes are heated to 90° to 104° F. for a few hours, or stored at lower temperatures in piles deeper than 6 feet without ventilation from the sides or bottom. Temperatures of 90° to 104° F. are not infrequent in cars that are started out during very cold weather, fired, and then delayed in transit or unloading until unseasonably warm weather sets in suddenly or that pass from a zone of very cold weather into one of warm weather. Overheating or lack of ventilation in cellars are equally effective in bringing about black heart.

Affected tubers are unfit for human food. An affected consignment is not marketable and can not be stored without risk of rapid decay.

Protect the live stock from cold winter winds. A shivering cow can not make the best use of its feed.

THE WEED PROBLEM.

No Single Feature of Farming Requires Such Universal and Unceasing Attention.

Weeds injure crops both in quantity and quality. They greatly increase the labor involved in farming. Other conditions being equal, the yield of most crops is inversely proportional to the growth of weeds. If farmers in general knew the extent of the loss which they cause—a loss that grows greater each year—they would practice control measures more diligently than most of them do. "The Weed Problem in American Agriculture" is discussed in a separate of the Yearbook of the Department of Agriculture. It discusses weeds, their cost, their habits, their benefits, and their control.

Considering the principal crops in the United States, the publication says, it is estimated that weeds reduce the yield of corn by 10 per cent; tame hay, 3 to 16 per cent; potatoes, 6 to 10 per cent; spring grain, 12 to 15 per cent; winter grain, 5 to 9 per cent; tobacco, fruit, and truck crops, 0 to 5 per cent; and pasture, 5 to 50 per cent.

How Weeds Cause Losses.

The extra labor required to keep weeds under control is probably the greatest economic loss which they cause. This labor cost falls most heavily on the intertilled crops. Records collected by the department show that on the average diversified farm the cost of tillage operations, about half of which is necessary for the control of weeds, comprises from 30 to 40 per cent of the total cost of farm operations.

Some weeds, such as wild onions, bitterweeds, and ragweeds, cause great annoyance to dairymen and milk dealers, for the cows eating this class of weeds give milk of a disagreeable odor and flavor. The loss of cattle and sheep due to poisonous weeds is very great. On the United States national forest ranges alone the loss in 1916 amounted to 6,648 cattle and 16,273 sheep, besides a number of horses, goats, and other animals.

In some sections weeds lower the price of land very materially, and cases have been cited where farms badly infested with such weeds as nut-grass, quack grass, and Canada thistle have been abandoned. Weeds not only result in big financial loss, but also in great personal discomfort, such diseases as hay fever being caused by ragweed and other species. Other classes of weeds are responsible for the spread of plant disease and insect pests. The recent rapid spread of white-pine blister rust, which is threatening several hundred million dollars' worth of the most valuable pine forests, is due entirely to the presence of certain forest weeds. Many water weeds cause trouble in drainage and irrigation ditches by their rank growth which is sufficient to stop the flow of water.

Methods of Controlling Weeds.

Crop rotation and diversification are the greatest foes of weeds, and usually where a single-crop system of farming is practiced weeds are exceedingly troublesome. In many instances where the single-crop system is practiced lands have become so foul with weeds that certain crops can no longer be grown profitably.

To control or eradicate weeds it is first necessary to determine the kind, the character and habits of growth and reproduction, and sufficient about their life history to fix the time when they are most susceptible to treatment. The publication divides weeds into two classes, first the class which because of their habits of growth require several methods of treatment and which includes such weeds as Canada thistle, quack-grass, hawkweeds, nut-grass, Johnson grass, and many others. The second class is composed of annuals, biennials, and such perennials as require no special treatment to kill them. In the control of weeds of this class, which is true of all weeds, it is necessary to prevent their spread from seeds. This can be done by destroying weeds along roadsides, fence rows, in vacant fields, etc., before they go to seed. A systematic rotation of crops also prevents many weeds from seeding. In small grain and hay farming no feature of weed control is more important than the use of clean seed, free from all weed seeds. It is important also to keep on the lookout for the appearance of new weeds, as the spread of many troublesome weeds can be prevented if control measures are employed when they appear.

Cooperation is one of the first essentials of success in any big commercial enterprise. Cooperation among the farmers is just as essential for controlling weeds. Weed control is a community problem rather than one for the individual farmer to solve, and without community action the efforts of the individual farmer are usually discouraging. This is true because where weeds are allowed to grow undisturbed they produce sufficient seeds each year to infest the adjacent lands. Agricultural clubs and other farm organizations could perhaps undertake no more important cooperative work than that of controlling weeds. The advantages of community action for the control of weeds, says the publication, can not be too strongly emphasized.

PRESIDENT WILSON TO FARMERS.

President Wilson has sent the following telegram to B. H. Crocheron, agricultural extension leader in California, to be communicated by him to the conference of farm bureaus, representing 85 per cent of the farms of that State, which met to consider emergency food-production problems at Berkeley, March 11:

"I am greatly interested in the emergency food production conference to be held at Berkeley. It is highly important that we do everything within our power to secure sufficient supplies for our own population and Army and for the nations with which we are associated. I trust the conference will find ways of overcoming the difficulties inherent in the situation and that its labors will be fruitful of large results and thereby aid in bringing this war to a successful termination. May I not suggest that you read to those assembled at the conference, as a message from me, the recent statement I made to the farmers of the Nation through the conference at Urbana?"

When the calf is two weeks old, grain and bright clean hay should be offered; the quantity fed should be increased as the calf's appetite demands.

Milk substitutes are not equal to milk in feeding calves, but give fair results when used with care. Now that milk is in demand for human food they are particularly recommended.

Save energy by doing farm work with a gasoline engine whenever it is possible. A good engine will perform any work to which it is adapted much cheaper than it can be by hand or frequently by horsepower.

Do Not Risk Having a Poor Corn Crop By Using Untested Seed

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MARCH 27, 1918. No. 34

FOOD PRODUCTION FUND.

Secretary Houston Submits Estimate for Appropriation for War Emergency Activities.

To enable the department to continue and extend, during the fiscal year 1919, the war emergency activities inaugurated under the provisions of the food production act of August 10, 1917, Secretary Houston has asked Congress for an appropriation of $19,730,893. In submitting an estimate for this amount, Secretary Houston explains that, while the provisions of the food production act will continue in effect during the existence of a state of war with Germany, the appropriations made by section 8 of the act are limited to the fiscal year ending June 30, 1918. "When the regular estimates of the department," the Secretary says, "were under consideration last fall it was decided to make no provision in them for the continuation of the emergency activities under the food production act. It was thought best to defer consideration of this matter until the needs of the next fiscal year could be more accurately determined."

Of the total estimate submitted, it is proposed to use $8,000,000 for the purchase and sale of seed to farmers for cash at cost; $6,100,000 for the development of the cooperative agricultural extension work in cooperation with the State agricultural colleges; $1,269,655 for combating animal diseases, stimulating the production of live stock, and encouraging the conservation and utilization of meat, poultry, dairy, and other animal products; $911,300 for the prevention, control, and eradication of insects and plant diseases, and the conservation and utilization of plant products; $2,368,958 for extending and enlarging the Market News Service of the Bureau of Markets, preventing waste of food in storage, in transit, or held for sale, giving advice concerning the market movement or distribution of perishable products, making inspections and certifications regarding the condition of perishable agricultural products, and gathering information in connection with the demand for and the production, supply, distribution, and utilization of food; and $1,080,980 for dealing with the farm-labor problem, enlarging the informational work of the department, printing and distributing emergency leaflets, posters, and other publications, and extending the work of the Bureau of Chemistry, the Bureau of Entomology, and the Bureau of Biological Survey in certain directions.

This appropriation, if granted, will supplement the funds included in the regular agricultural appropriation bill which is now pending in the Senate.

ADVISORY COMMITTEE.

Farmers and Live-Stock Men to Assist Department of Agriculture and Food Administration.

The Secretary of Agriculture and the Food Administrator have formed an advisory committee of representative producers of farm products and live stock. The members of the committee have been selected with reference not only to the larger agricultural interests but also to geographical considerations. The full membership is as follows:

C. S. Barrett, Union City, Ga.; E. S. Brigham, St. Albans, Vt.; W. L. Brown, Kingman, Kans.; David R. Coker, Hartsville, S. C.; W. R. Dodson, Baton Rouge, La.; Eugene Funk, Bloomington, Ill.; N. H. Gentry, Sedalia, Mo.; W. G. Gordon, Humboldt, Tenn.; J. N. Hagan, Deering, N. Dak.; F. J. Hagenbarth, Spencer, Idaho; W. W. Harrah, Pendleton, Oreg.; C. W. Hunt, Logan, Iowa; W. H. Jeffers, Plainsboro, N. J.; D. O. Mahoney, Viroqua, Wis.; David P. Massie, Chillicothe, Ohio; Wm. F. Pratt, Batavia, N. Y.; Geo. C. Roeding, Fresno, Cal.; Marion Sansom, Fort Worth, Tex.; Henry C. Stuart, Elk Garden, Va.; C. J. Tyson, Floradale, Pa.; Oliver Wilson, Peoria, Ill.; Isaac Lincoln Aberdeen, S. Dak.; Milo D. Campbell, Coldwater, Mich.; John Grattan, Golden, Colo.

The committee will be called into conference by the two departments from time to time to discuss national agricultural problems, and the first meeting will be held in the office of the Secretary of Agriculture on March 28.

Dairy calves should be fed sweet milk of a uniform temperature. This is essential to their health, which is particularly important in winter.

The housewife must not practice economy at the expense of the health of her family. Growing children must have good milk to drink, as well as other nourishing food.

GARBAGE FOR HOGS.

Possibility of Hog Cholera Being Transmitted—May Safely Be Fed to Immune Animals.

The present extensive practice of feeding garbage to hogs is in keeping with the national movement for the utilization of waste products and for increasing the production of pork and fats, at least during the war. There is reason to believe, however, that many of these emergency enterprises will prove to be sufficiently remunerative to remain permanent after the war, especially if hogs are fed on garbage from cities of 10,000 or more, from which, doubtless, the garbage will be disposed of and utilized in this manner. Already this method of feeding has produced good results, and many who have entered the field probably would not have engaged in the production of pork under any other conditions, owing to the amount of capital necessary and the small probability of getting satisfactory returns on the money invested.

Sources of Hog Cholera.

So far as can be ascertained, in cases in which failure has been met with, the trouble has been mostly due to the fact that hog cholera was allowed to claim a large portion of the animals; in other words, the owners failed to immunize their stock in a proper manner. The belief that hogs fed on garbage are exposed daily to the danger of cholera infection is well founded. There is always the possibility that garbage contains scraps of pork, such as rinds and trimmings from hams and bacon, or products of cholera carcasses that have been prepared for markets at small local slaughtering houses where no inspection is maintained. These pieces of choleric pork, without doubt, will reproduce the disease if consumed in the raw state by susceptible animals, besides creating a source of infection which may be retained on the premises under garbage-feeding conditions.

The hog raiser who feeds garbage in a limited way only to supplement in part other classes of feed can readily arrange to cook the garbage thoroughly before feeding and in this way eliminate, to a large degree, the danger of cholera infection. If, however, large herds are fed on garbage entirely, cooking is not practicable, and from the feeders'

point of view it is not advisable. Therefore, in all such cases it is of the utmost importance that the animals be immunized and thus protected from hog cholera; in fact, owners of such enterprises should be sure that hogs are permanently immune before they are placed on such feed.

Inoculation Is Cheap Insurance.

Pigs farrowed from immune sows have a natural resistance to hog cholera during their suckling period. When they are about to lose this degree of immunity, about weaning time, they should be given the simultaneous inoculation (serum and virus). Even with this method of treatment a few individuals may become again susceptible; therefore the herd should be observed closely at all times and treated again if any of the animals show signs of infection.

Considering the income derived from hogs and the reasonable rates at which garbage has been obtained, the extra expense of treating the animals must be viewed as part of a business proposition, such as insuring against destruction by fire or against accidents of any kind; and feeders of garbage can not consider their business as safe unless they protect it against all possible reverses, of which the most serious is hog cholera.

CARE OF HEN WITH CHICKS.

Attention During Hatching Period Will Prevent Loss.

When the chickens begin to hatch, the sitting hen should not be disturbed unless she is restless and steps on or picks the chickens. In this case the chickens should be removed as soon as dry and placed in a basket lined with flannel or some other warm material and the basket placed near a fire or in some warm place until all the eggs are hatched. Another plan is to remove the eggs from the restless hen and place them under a more quiet one whose eggs are hatching at the same time.

When the eggs hatch unevenly, as is frequently the case, those which are slow in hatching may be placed under another hen. Hens often are restless after a part of the chickens are out, which allows the remaining eggs to become cool at the very time when steady heat is necessary to successful and strong hatches. Remove the eggshells and any eggs which have not hatched as soon as hatching is over.

The mother hen should be fed as soon as possible after the eggs are hatched, as feeding tends to keep her quiet. Hens that are not so fed will sometimes leave their nests. In some cases it is best that the hen remain on the nest and brood the chickens for at least 24 hours after the hatching is over.

It is important at this stage to guard against lice and mites. Before the hen and her chickens are removed to a brooding coop she should be dusted with a good insect powder. This should be repeated every two weeks, or as often as is necessary, until the chickens are weaned. If lice become thick on the chickens, or if they are troubled with "head lice," a very little grease such as lard or vaseline may be applied with the fingers on the head, neck, under the wings, and around the vent. Great care is necessary, however, not to get too much grease on the chickens, as it will stop their growth and in some cases may prove fatal.

FARMERS AND THE WAR.

A Consoling View of Present Difficulties and a Wise Word for the Future.

There is much comfort to the farmer and much of wise suggestion for the future in the two following editorial expressions from the Prairie Farmer of Illinois:

" Conquering Our Difficulties.

"Our own troubles always look biggest to us. We see the great difficulty of increasing crop production, or even maintaining it, in the face of the great shortage of skilled labor.

"It will make our own problem seem less, perhaps, to realize that every other industry faces the same trouble. The service flag which hangs in the Chicago and Northwestern terminal station at Chicago shows that railroad has given 5,764 men to the Army and Navy. This railroad is confronted with the tremendous task of handling nearly twice its usual volume of freight, yet it has cheerfully given nearly 6,000 of its trained men to the Government, and is training green hands to take their places.

"Surely we can face the task of doing a part of our work with unskilled men with an equal degree of cheerfulness. Let us resolve to meet the problem with a determination to win *in spite of difficulties.* It is that kind of spirit that will make the United States unconquerable."

" Training Farm Labor.

"The end of the war is not in sight. The collapse of Russia has allowed Germany to shift many new divisions to the western front, and it will take millions of American soldiers to give the allies the superiority necessary to victory.

"Military men are looking to 1919 as the year when the United States will play a big part in the war. It is certain that the war will come much closer home to us in 1919 than it will this year. * * *

"One of the chief reasons why every farmer who can use a boy from the Boy's Working Reserve should do so this year is that he may be trained for more efficient work in 1919. We ought to use 25,000 of these boys on our Illinois farms this year. We will, in most cases, find them much better farm hands than we now think possible. But most important of all, we will have that number of trained farm hands for 1919. When that year comes we will thank God for these boys who were trained in advance, for without them it will be impossible to keep up agricultural production."

SURVEY OF TRUCK PLANTINGS.

Information on the acreages and conditions of principal truck crops to be grown in the neighborhood of large cities will be collected and made available by the Bureau of Crop Estimates, United States Department of Agriculture. Local agents of the Bureau of Markets will cooperate in this service at Cleveland, Providence, Boston, Springfield, Mass., Denver, and Grand Rapids, where a local market reporting service has already been established by the Bureau of Markets.

The survey is expected to show approximately what production of various crops is planned to mature in different months as compared with the production last year or the normal or average production in former years. With this information in their possession, local growers will be able to determine whether their individual acreages of any crop should be changed in order that their local markets may be supplied with the right quantities of truck crops, thus helping to avoid either a shortage or an oversupply at any time during the marketing season. It will also reduce the necessity for shipping in or out of the local market, which is especially important this year.

The information gathered in the survey will be made available to all local growers for their use. The names and individual reports of growers will be treated as strictly confidential and only totals of acreage and production figures and probable maturing dates will be published. At each of the markets named the agents of the Bureau of Markets will assist growers and consumers through the local newspapers by stimulating the use of local grown crops and by giving them information on market conditions.

Intestinal worms, lung worms, and skin parasites levy a burdensome tax upon the profits of hog raising. Absolute cleanliness will be found valuable in preventing and controlling these troubles, as well as the more serious diseases—hog cholera and tuberculosis.

CHICKS IN BROODERS.

Handling and Care Suited to Conditions Necessary for Success in Artificial Brooding.

More difference of opinion exists as to the value of brooding systems than in any other part of poultry rearing, which shows that no system is ideal for all conditions, but that success depends largely on individual handling and care. Many failures in brooding are due to weak chicks, which may be traced to faulty incubation or weakness in breeding stock. Successful chick raising depends primarily upon having healthy, vigorous breeding stock.

Avoid Overcrowding and Lack of Ventilation.

Some of the most important faults in the management of brooders are overcrowding and lack of ventilation, while chickens fail to get sufficient exercise. The brooder should supply the proper temperature, be readily adapted to change in weather conditions, be easy to clean and well ventilated. The capacity should not be overestimated. One-half to two-thirds of the number of chickens commonly advised will do much better than a larger number. Brooders and hovers should have from one-half to 2 inches of sand, dry dirt, cut clover, or chaff spread over the floor, and in case they are kept in the brooder house over the floor of this also. The hovers should be cleaned frequently, as cleanliness is essential in raising chickens successfully.

The best temperature at which to keep a brooder or hover depends on the position of the thermometer, the style of the hover, the age of the chickens, and the weather conditions. Aim to keep the chickens comfortable. As the operator learns by the action of the chickens the amount of heat they require, he can discard the thermometer if he desires. When too cold they will crowd together and try to get nearer the heat. If it is found in the morning that the droppings are well scattered under the hover it is an indication that the chickens have had enough heat. If the chickens are comfortable at night they will be spread out under the hover with the heads of some protruding from under the hover cloth. Too much heat will cause them to pant and gasp and sit around with their mouths open.

Temperatures for Brooding.

It is impossible to state for each case at what temperature the brooders should be kept to raise young chickens; however, it will run from 90° up to 100° F. in some cases, as some broods of chickens seem to require more heat than others, an average being 93° to 95° F. for the first week or 10 days, when the temperature is gradually reduced to 85° for the following 10 days, and then lowered to 70° or 75° F. for as long as the chickens need heat. This depends somewhat on the season of the year and the number of the chickens, as it can be readily seen that the heat generated by 50 chickens would raise the temperature under the hover to a higher degree than the heat given off by a lesser number, consequently the amount of heat furnished by the lamp or stove will have to be regulated accordingly. As the chickens grow larger and need less heat, the lamps may be used only at night, and later only on cold nights. The heat is usually cut off at the end of 4 or 5 weeks in March or April in the vicinity of Washington, D. C., while winter chickens have heat for 8 or 10 weeks, or until they are well feathered. Care should be taken to prevent chilling or overheating the chickens, which weakens them and may result in bowel trouble.

When chickens are first put into the brooder they should be confined under or around the hover by placing a board or wire frame a few inches outside (this would not apply to the small outdoor colony brooders). The fence or guard should be moved gradually farther away from the hover and discarded entirely when the chickens are 3 or 4 days old, or when they have learned to return to the source of heat. Young chickens should be closely watched to see that they do not huddle together or get chilled. They should be allowed to run on the ground whenever the weather is favorable, as they do much better than when kept continuously on cement or board floors. Weak chickens should usually be killed as soon as noticed, as they rarely make good stock, while they may become carriers of disease. Brooders should be disinfected at least once a year, and more frequently if the chickens brooded in them have had any disease.

OPPORTUNITIES IN HONEY.

Department of Agriculture Says Present Crop Can Be Made Ten Times Greater.

It is possible for the American beekeeping industry to be developed so that the honey crop will be ten times what it is at present, says Dr. E. F. Phillips in "A Wasted Sugar Supply," a recent publication of the United States Department of Agriculture. The path to this development, it is said, lies through the education of beekeepers to prevent great wastes that come largely from poor winter housing, two infectious diseases of bees, failure to control swarming, and failure to provide proper room for surplus honey.

"The beekeeping industry," it is stated, "may be the means of conserving a national resource now largely wasted, changing it into nature's own sweet. The raw material is free on every hand; the investment for equipment is small in comparison with other branches of agriculture; the profits are fully commensurate with the study and labor involved. It would seem profitable to stop such a waste of so desirable a supply of sugar. This waste can be prevented only by the education of beekeepers."

Demand for Honey Increased.

The present honey crop of the United States barely exceeds 250,000,000 pounds. That the country produces even this much is unknown to most people, it is stated; for while honey was the chief form of sugar used in ancient times, the ease of getting cane or beet sugar has placed honey in the background. Now that our sugar supply is reduced by reason of supplying the allies with part of the sugar they need, the demand for honey has increased not only domestically but also for export.

THE SEED CORN SITUATION.

Children Have Opportunity of Helping to Win the War.

The 1917 corn crop of many districts, even far down into the corn-belt States, is in poor condition for use as seed. In many cases the seed selected last fall froze before drying and contains weak and dead ears. Even at this late date the best place to get seed for those who can is from corn grown in the neighborhood. Unless a preliminary germination test shows that most of the ears will grow, careful sorting followed by germination testing of each individual ear chosen will be necessary.

After testing various methods the United States Department of Agriculture has found the "rag doll" tester, simple, cheap, and satisfactory, and has just issued Farmers' Bulletin 948, The Rag Doll Seed Tester: Its Use in Determining Which Ears of Corn Are Fit for Seed. A copy will be sent free on application.

By the use of this tester during the next few weeks even an 8-year-old child can find out which ears can be depended upon to grow. The situation is unusual and calls for unusual precaution. Unless this individual ear testing is promptly attended to, thousands of farms will have poor stands, wasted labor, idle land, or soft corn this year. To replant or to plant seed of southern varieties is likely to cause a recurrence of the soft corn situation next fall. Testing out from locally grown supplies the ears that will germinate is the best means of obtaining seed that will produce a good stand and a well-matured crop.

C. P. Hartley,
In Charge of Corn Investigations.

CONTROL PEA BLIGHT.

Making Silage of the Vines, Rotation of Crops, and Drainage Are Preventive Measures.

When a field of peas wilts suddenly without seeming provocation it is said to have blight. Although greatly influenced by soil and weather conditions, blight is primarily caused by the plants being attacked by one or more kinds of fungi. While there is no one way to prevent pea blight, a system of prevention has been worked out by the Wisconsin Experiment Station, and specialists of the United States Department of Agriculture believe the system to be applicable to other pea-growing sections of the United States. The system consists in securing healthy seed, rotating crops, using the silo for green vines, better preparation of the seed bed, soil fertilization, and soil drainage.

How to Detect Disease.

Discussing the nature of the disease, Department of Agriculture specialists explain that if a handful of blight-stricken pea plants are pulled up they are found to have the base of the stems black and rotten. In addition to wilting, there may be brown spots or blotches on the leaves, stems or pods. When once started, blight is most destructive in hot weather following excessive rains. Plants growing on poorly drained soils suffer much more than those on fertile, well-drained soils.

Spread of the Disease.

Pea seeds that are produced underneath the spots on the pods frequently carry the disease in their interior. The seat of the infection is so well protected by the seed coats that it can not be wholly eliminated by disinfection. The disease is also carried by infected pea straw, manure from stock fed on such straw, and on volunteer vines which come up in the fields after harvest. Furthermore, it seems to persist in the soil for several years when once it has become firmly established through lack of rotation.

Prevention of Pea Blight.

Seed disinfection is of little value in preventing blight, and spraying is not much better except on a very small scale. Here are the main points in prevention worked out by the Wisconsin specialists:

1. *Secure healthy seed* from fields where little or no blight occurred. It is practically impossible to detect minor infections on the seed, hence the reliability of the seedsman should be considered.

2. *Rotate crops.*—This process hastens the destruction of pea refuse and volunteer vines where the blight may be held over winter. A three to five year rotation has given best results on most soils, although six or seven years is sometimes not enough where there is danger of reinfecting the soil by surface drainage water or wind-blown dust carrying bits of blighted straw.

3. *Use the silo for green vines.*—This is an important, practical, and reliable measure from the standpoint of plant sanitation, because the vitality of the disease germs is destroyed by the ensiling process.

4. *Prepare the seed bed better.*—Peas have been grown for centuries in highly cultivated gardens and respond best to that kind of treatment. Plants grown in poorly prepared soil are weak and more quickly succumb to attacks of blight. Fall plowing with early spring working puts most soils in excellent condition to produce good thrifty plants.

5. *Attend to soil fertilization.*—Many seem to think that because a pea is a legume and harbors nitrogen-fixing bacteria on its roots it can look after itself. Such is not the case. The pea plants need available plant food, and there is no better way to supply it than by applications of cow manure harrowed into the soil in the spring. This practice has the added advantage of helping to prevent the baking and packing of the soil about the young plant stems. Lime is needed if the soil is acid, and inoculation is helpful if the soil is new in the culture of peas. A well-fed plant is strong and capable of withstanding blight to a great extent.

6. *Drain the soil well.*—Drainage is a most important factor in insuring a vigorous stand of plants which will be relatively free from blight. Thorough tiling with ample-sized tile will allow the soil to be worked early in the spring so that the crop may be grown before the severely hot weather sets in. The tile also will remove rapidly excess surface water after rains, which otherwise would predispose the plants to blight.

If in doubt about pea blight and the most practicable way for its prevention in your case, consult the local county demonstration agent, write to the State agricultural experiment station, or the Bureau of Plant Industry, United States Department of Agriculture.

The straight corn diet, which many hogs receive from one year's end to the other, lessens vitality. The researches of the Wisconsin Experiment Station have shown that this is probably brought about by retarding the development of the vital organs.

Plumbing is becoming a necessity in both city and country homes, not only for comfort and convenience but even more for health and cleanliness. It also provides for the proper disposal of the wastes of the household which should by no means be neglected.

PREVENT MILK FEVER.

All Dairymen Should Be Prepared to Administer Simple and Successful Treatment.

In view of the fact that milk fever is a very common disease affecting cows, particularly the heaviest milkers in the large dairy districts, it is of great importance that dairymen acquaint themselves with the present extremely successful methods of treatment. This is urged by a specialist of the United States Department of Agriculture in Farmers' Bulletin 206, "Milk Fever: Its Simple and Successful Treatment." The malady is one which may cause severe losses to the dairy industry unless properly treated. Though the direct cause of the disease is unknown, the injection of filtered air into the udder of the sick animal is an effective cure.

The disease more frequently attacks well-nourished, fleshy, heavy-milking cows. It occurs during the most active period of life (fourth to sixth calf), and is characterized by a sudden onset and complete paralysis. One attack does not render the animal immune. It generally follows closely the act of calving and terminates in a short time (usually from 18 to 72 hours) either in recovery or death. While the disease may occur at any time during the year, it is seen principally during the warm summer season. It is rarely, if ever, met with in pure beef breeds.

Symptoms of Disease.

At the commencement of an attack there is usually excitement, the specialists say. The cow is restless, treads with the hind feet, switches the tail, and walks about uneasily. These symptoms are followed within a few hours by partial paralysis, indicated by a staggering gait, especially in the hind legs. The animal then becomes quieter, more weak, and finally falls down, unable to rise. While down the animal assumes a very characteristic position, which is a great aid in diagnosis. The head is turned around to the side (usually the left) and rests on the chest. On the day following the onset of the disease, and in some cases even within a few hours, the animal may be up eating and drinking in a normal manner. In fatal cases the animal may remain perfectly quiet, being completely paralyzed, until death.

Prior to the introduction of the treatment suggested in the bulletin the death rate due to milk fever was placed by various authors at from 40 to 50 and even 70 per cent. Statistics taken of 914 cases where the air-injection treatment was used show that over 96 per cent recovered.

Treatment.

The treatment consists of injecting air through sterile absorbent cotton, preferably

impregnated with carbolic acid, into the teats by means of a specially designed syringe. Soap and water should first be applied to the teats and udder, after which they should be carefully disinfected with a 5 per cent solution of carbolic acid (3 tablespoonfuls to 1 quart of water). Then insert the syringe in the teats and force air in each quarter of the udder. After one-fourth of the udder is well distended with filtered air a broad piece of tape should be tied about the teat to prevent the air from escaping. In case the air becomes absorbed and no improvement is noted within 5 hours, a repetition of this treatment should be made under the same antiseptic precautions as the first, each quarter of the udder being filled. The air should be left in the udder for 24 hours, and when the recovery is assured it should be gradually milked out. It is best to secure the services of a veterinarian for this treatment, but this is not necessary if the dairyman or farmer has proper equipment and takes due precautions.

DOG FANCIERS CAN HELP.

Owners of Dogs May Greatly Lessen Menace to Sheep Industry.

Owners of dogs can help prevent the ravages of the sheep killers whose onslaughts have been found to be one of the greatest evils preventing the upbuilding of the wool and mutton industry in this country, says Farmers' Bulletin 935, "The Sheep-Killing Dog," issued by the United States Department of Agriculture.

"The dog rightfully holds a strong place in the minds and affections of men," says the bulletin. "The owner of a good dog finds in him a most faithful friend, but it sometimes happens that the dog most highly esteemed is also one that kills and worries the most sheep and is the most cunning in obscuring the evidences of his guilt. A well-bred dog's habit of lying innocently asleep in the front yard during the daytime is no proof that the same dog does not kill sheep at night.

"Because of the economic loss occasioned by sheep-killing dogs, and because such dogs bring the whole of their kind into bad repute, the true admirers and friends of this animal should help to further any steps likely to result in the limitation of the activity of these discrediting members of a noble race. One of the most practicable methods of accomplishing this result seems to be to place upon dogs such a tax as will reduce the number of superfluous ones and result in fewer being kept by persons who can not or will not give them the attention necessary to prevent the formation of habits and associations that lead to sheep killing."

CABBAGE DISEASES.

Largely Preventable by Simple Methods of Plant Sanitation—Control Measures Recommended.

Cabbage diseases, which have been known to destroy practically entire crops, are preventable in the main by simple methods of plant sanitation. Farmers' Bulletin 925, "Cabbage Diseases," recently published by the United States Department of Agriculture, tells how to handle these diseases and gives a description of 14 which are considered the most important.

Control Measures.

Rotation of crops should be practiced, says the bulletin, avoiding crops which belong to the cabbage family, such as cauliflower, turnips, Brussels sprouts, and kale. Keep down mustard and weeds which harbor cabbage pests. Drainage water and refuse from diseased cabbage fields may carry infection, as will stable manure with which diseased material has been mingled. The seed bed is often a source of infection, and the greatest pains, therefore, should be taken to insure healthy plants. Locate the seed bed on new ground if possible, or sterilize by steam the soil that is used. Disinfect all cabbage seed before planting to prevent black-rot and black-leg. Clubroot is avoided by the free use of lime and by setting healthy plants.

How Diseases Are Spread.

Fungous and bacterial diseases are carried from one place to another by various means, such as insects, infected seed, transplanting from an infected seed bed to the field, drainage water, cabbage refuse and stable manure, farm animals and tools, and wind. In view of these facts, the chief aim of the farmer should be to prevent, if possible, the introduction and distribution of destructive diseases on his farm. In order to accomplish this, several precautions should be observed, of which the more important are the disinfection of seed, the location and care of the seed bed, and crop rotation. To disinfect seed, use 1 ounce of formaldehyde (40 per cent) to 2 gallons of water, or 1 teaspoonful to a teacupful of water. Soak the seed for 20 minutes in this solution, dip in clear water to wash off the formaldehyde, and then spread in thin layers to dry, stirring if needed.

To Disinfect Soil.

To avoid danger of spreading the disease to noninfested fields by means of the plants from the seed bed, the following recommendations are made for disinfecting the soil in which the plants are grown: Sterilization by means of drain tile laid in the bottom of the beds, through which steam is passed; by means of an inverted pan under which steam is admitted; or by drenching the soil with a formalin solution consisting of 1 to 100, or 1 to 200 solution of formaldehyde.

Crop rotation is an essential practice whether or not it is necessary in the control of any plant maladies. There are numerous fungous diseases which appear year after year on the same field. Some of them, such as clubroot of cabbage, are strictly soil parasites and can not be controlled by any fungicide. About the only method left to get rid of the organisms is to starve them out, and this can be done only by a well-planned system of crop rotation. For ordinary practice, a rotation of four or five years is sufficient to reduce greatly the loss from most parasites. Deep and frequent cultivation, by means of which the organisms are exposed to the air and sunshine, assists in exterminating them.

SCHOOL DRUG GARDENS.

Eighteen Schools of Pharmacy Are Growing Medicinal Plants.

The development of drug-plant culture in the United States since the beginning of the European war has brought with it the installation of medicinal-plant gardens in 18 schools of pharmacy in the United States, says a publication of the United States Department of Agriculture on "Production of Drug-Plant Crops in the United States."

"Although these gardens are not devoted to commercial drug growing," says the publication, "nevertheless they can be made to contribute in a very practical way to the public welfare. They afford unusual opportunities for students of pharmacy to acquire a thorough knowledge of many medicinal plants and to be thereby better enabled to recognize inferiority or adulteration in crude drugs. These gardens also supply material useful in the investigation of many problems arising in the necessary revision of the United States Pharmacopœia and the National Formulary, the official standards for drugs under the national Food and Drugs Act. Since the improvement of the quality of drugs and the perfecting of the standards by which a high quality of drugs and medicines may be maintained are both questions of national concern, the service which the institutional drug garden can render in attaining these ends is worthy of wider recognition."

Haphazard growing of drug plants by inexperienced persons is advised against in the publication, which says that the chief reliance should be based on experienced commercial growers.

SOY BEANS AS FOOD.

Some Ways of Using This Valuable Addition to the Diet—Recipes for Cooking.

For many years soy beans, which are well known in the Orient as staple foods, have been used more or less and liked in the United States in the regions where they are grown. More recently soy beans have been used by canners to some extent for general trade purposes. Though the flavor, which seems to differ somewhat with different varieties, is not very prominent, soy beans are very palatable.

The war situation, with its need for finding new foods and new uses for old foods, has fixed attention on this food crop to such an extent that the name, soy bean, has now become a fairly familiar one.

In regions where they are grown, soy beans are rather generally accessible, and in some other localities they have been marketed to some extent. However, they are so important for industrial and agricultural uses that they have not as yet become common for food purposes.

Green Soy Beans.

Soy beans can be used in a number of ways as food. The yellow, brown, and green seeded varieties, at least, are excellent for use as a green vegetable, being shelled and cooked like lima beans or other "green" or unripe beans. The dry beans are used in much the same way as navy beans and other beans or cowpeas.

Soy-Bean Meal.

The ground soy-bean or soy-bean meal, though not a common commodity, has been used for a good many years in invalid dietetics. The soy-bean meal can be used in many ways. For instance, it can be mixed with other flour or with meals of different kinds for making quick breads in which sour milk and soda, baking powder, or beaten eggs are used to make the cakes or muffins light. It can not be used alone to make a yeast-raised bread, since it does not contain gluten. In this it resembles such grains as corn, barley, or buckwheat, rather than wheat or rye.

Press-Cake Meal.

Ripe soy beans contain an abundance of oil and no starch, or, at most, only a trace. Soy-bean oil, which is expressed from the beans, is valuable for industrial purposes and soy-bean oil making is a well-known industry. The press cake which remains after the oil is pressed out is a valuable by-product, being rich in protein, and has been used chiefly for feeding live stock and as a fertilizer. If the oil is pressed from clean beans, free from grit and other foreign substances, the cake can be ground and used in many ways in cookery. Like the soy bean itself, press-cake meal is very rich in protein and adds much to the protein value of the foods of which it forms an ingredient. It differs decidedly from the soy-bean meal made by grinding the whole beans, since it contains a larger proportion of protein and a smaller proportion of oil.

In addition to these products there are others, such as soy-bean sauce (a thick fermented sauce used something like Worcestershire and similar sauces), and bean curd. These products are very well known in the Orient and in a limited way in the United States, their use being chiefly confined here as yet to the Chinese and Japanese population, though through oriental restaurants they have become known to some extent to others.

How to Cook Soy Beans.

Experiments by the Department of Agriculture's home economics experts have shown that the soy beans themselves and the soy-bean meal and press cake can be used in many palatable ways, and it is fair to predict that the demand for such foodstuffs will increase until they become very much better known than at present. Owing to the fact that soy beans contain so much oil, they require longer preliminary soaking and boiling before they are ready for use than do the beans with which we are more familiar. If the housekeeper has a pressure cooker which she uses for canning or other purposes she can save time by using this to cook her soy beans, for they soften very readily when thus treated. In general, it is well to soak the beans and then cook them until soft. The time required will vary with the dryness of the beans and perhaps with the variety also. After the preliminary soaking for 20 to 24 hours the beans should be cooked until they are well softened, which may require as much as two hours, or more. When softened the beans can be used for bean soup, for bean purée, or, to give it its old name, "bean porridge," for baked beans, for croquettes, and for many other dishes.

Better results are obtained if the beans are allowed to simmer rather than boil rapidly. A fireless cooker with hot plates can be used to advantage, a second heating being given if the first is not enough to soften them.

Soy-bean meal is on sale in some places, but the housekeeper who wishes to do so can grind soy beans by putting them through a meat chopper several times or by using a coffee mill or other small mill. The meal does not require any preliminary cooking to soften it. Soy-bean meal can be used like other common meals to make a variety of palatable dishes.

Since the beans themselves contain so much fat, it is obvious that they do not need fat meat added to them in cookery to supply this constituent, though some prefer to use a very small quantity to give flavor. Onions, tomatoes, and other seasoning vegetables are palatable additions to soy-bean dishes, as they are to those made from other beans.

The following recipes for cooking soy beans are worth trying:

Boiled Soy Beans.

Soak 2 cups dried soy beans in 1½ quarts water from 22 to 24 hours. Drain, then add boiling water, 1 tablespoon salt, and one-quarter teaspoon baking soda. Cook just below the boiling point for two hours. The double boiler is good for cooking, as slow cooking is desirable.

They may be cooked in pressure cooker. Fill a quart jar with soaked beans, add 1 teaspoon salt and half fill the jar with cold water. Cook one hour and a half in a pressure cooker at 15 pounds pressure.

The beans can be seasoned with salt and pepper or in any other way preferred.

Baked Soy Beans.

2 cups boiled soy beans.
1 cup strained tomato pulp.
1 tablespoon cornstarch.
¼ teaspoon celery seed.
Dash of paprika.
1 teaspoon onion juice.
1½ teaspoons salt.

Make a tomato sauce by mixing the cornstarch, celery seed, paprika, and onion juice with cold tomato pulp and cook until it thickens. Pour over the soy beans and bake in moderate oven until brown.

Soy-Bean Loaf.

2 cups boiled soy beans.
1 cup Liberty bread crumbs.
1 cup chopped celery cooked until tender.
1 tablespoon cornstarch.
⅛ teaspoon curry powder, if liked.
1 teaspoon salt.
½ teaspoon pepper.
½ cup milk.

Mix the cornstarch, curry, salt, and pepper with the cold milk. Cook the mixture until it thickens, then mix with the soy beans (mashed or ground) and the other ingredients. Form into a loaf and bake in a greased pan.

Soy-Bean Loaf with Potatoes.

2 cups boiled soy beans.
2 cups riced potatoes.
½ cup milk.
¼ teaspoon sage.
1 teaspoon salt.
½ teaspoon paprika.
2 teaspoons onion juice.

Grind the boiled soy beans through a food chopper. Add the potatoes and other ingredients. Form into a loaf and bake in greased pan.

Soy-Bean Vegetable Soup.

2 cups boiled soy beans.
2 cups strained tomato pulp.
2 cups water.
½ cup chopped celery.
2 teaspoons onion juice.
¼ teaspoon popper.
1 teaspoon salt.

Cook the celery in the water until tender. Mix the cornstarch and seasoning with the cold tomato pulp and add with the bean pulp to the celery and water. Cook 20 minutes. No additional fat is required, as soy beans contain a high percentage of fat.

Cream of Soy-Bean Soup.

2 cups cooked soy beans.
1 quart skim milk.
1½ teaspoons salt.
¼ teaspoon pepper.
1 tablespoon cornstarch.

Press the cooked soy beans through a colander. Mix the cornstarch with ½ cup cold milk. Heat the remainder of the milk in a double boiler with the soy beans, salt, and pepper. Add the cornstarch mixed with milk and cook for 20 minutes.

Soy-Bean Croquettes.

2 cups boiled soy beans.
1 egg.
1 teaspoon salt.
¼ teaspoon pepper.
2 ounces cheese.
½ cup ground celery and top.

Grind the soy beans, cheese, and celery through a meat grinder. Add the salt, pepper, and one-half of the egg, saving the remainder to use in crumbing the croquettes. Form into desired shape, roll in egg diluted with ½ tablespoon water, then in fine corn meal, and bake in greased pan until brown.

RAISE MORE POULTRY.

Owners of back yards in cities and towns are asked to do everything in their power to help the meat and egg supply by raising small flocks of poultry in back yards. Farmers are requested greatly to increase their farm flocks of hens so that 100 on every farm will be the average for the Nation.

The following statement regarding the poultry needs is taken from the official agricultural program for 1918 issued recently by the United States Department of Agriculture:

"Poultry production should be increased greatly, especially in back yards and on farms where waste material is available and the purchase of expensive grains and other material is not required.

"Increased poultry production may be attained most economically by early hatching; by confining mother hens at least 10 days after the chicks are hatched; by reducing losses on account of rats, weasels, and thieves, and from cold, damp conditions; by thorough sanitation; by discouraging the marketing of early-hatched pullets as broilers; by eliminating nonproducing hens and keeping good layers through at least two laying seasons; and by the poultryman raising his own feed as far as possible."

COTTAGE-CHEESE PRODUCTION.

Forward, cottage cheese!

Nine agents sent by the Bureau of Animal Industry of the United States Department of Agriculture worked last summer to induce creameries to collect and save skim milk, formerly fed to animals or wasted, and to manufacture it into cottage cheese or condensed skim milk, a wholesome substitute for meat.

To September 30, the following results were accomplished by the nine men:

Total quantity of skim milk saved (approximate).....pounds..	15,640,000
Cottage cheese, or its equivalent in the form of condensed skim milk.....pounds..	2,606,000
Equivalent in food value to meat....do....	2,606,000
Quantity of meat which would have been produced had this milk been fed to hogs .....pounds..	752,000
Total saved by using this as cottage cheese or condensed skim milk instead of using it as hog feed, equivalent to.....pounds..	1,854,000
Total cost of the work done by the field men.	$10,500
Quantity of cottage cheese or its equivalent in condensed skim milk saved for each dollar the department expended.pounds..	248
Quantity of meat substitute saved for each dollar expended.....pounds..	248

These figures are based on actual quantities of cottage cheese manufactured through efforts of the nine agents in four months.

Personal instructions were given to creamery operators who were willing to undertake to save the by-products. There is no doubt that the creameries will continue the manufacture of cottage cheese and that others will join in the production of the meat substitute.

The general-purpose breeds of poultry are best for the backyard flock. They will supply both eggs and meats. They are usually good sitters and good mothers.

The safest way for those who are about to make their first attempt at poultry raising is to start in a small way with a few fowls and learn the business thoroughly before making large investments.

As there has been a constant tendency for some breeders to incline more to the dairy type of animals, while others prefer to develop the beef tendencies, there has been, and probably always will be, a wide variation in the types of dual-purpose animals.

GROW VEGETABLE SEED.

Threatened Shortage of Seed for 1919—Provide Your Own Supply by Planting Roots This Spring.

Growers of root crops of all kinds who are likely to need see for planting in 1919 would do well to take steps to insure at least a partial supply by growing it themselves. This can be done only by the use of roots already grown and now in the ground or held in storage. Such crops as carrots, beets, onions, turnips, rutabagas, parsnips, and salsify are involved.

Shortage of Seed Threatened.

Weather conditions in the regions where the chief seed supply of these crops is produced have been very unfavorable so far this year. This fact, together with the certainty that the usual European sources can not be relied upon to supply us, threatens a very considerable shortage for next spring's planting. Since it takes two years to produce these seeds, this shortage can only be alleviated by the planting for seed of roots already grown.

Seed of the crops mentioned above can readily be grown over a wide range of the Northern States. It is highly desirable that persons having uniform, well-selected, and sound roots should plant some of them for seed.

How to Plant Roots.

Parsnips and salsify, being hardy, can be most easily provided. The shortage of these is not serious, as the amounts needed are not large. For such roots as must be stored, the time is at hand to choose those to be used for planting for seed production. It is of paramount importance that they be gotten into the ground as early as the soil and weather conditions permit. The prospect for a successful seed crop of these roots is very much improved if there is opportunity for root growth before the tops are started by warm weather. It is necessary to cover the roots with 1 or 2 inches of soil to protect them from frost and light freezing after planting.

Rows of beets, carrots, onions, turnips, and rutabagas should be spaced from 3 to 4 feet apart. Plants should stand from 2½ to 3 feet in the row for all but onions, which may be spaced 6 inches. Cultivation should be thorough and shallow. The soil should be in good condition and should be fertile.

It is often desirable to support the seed stalks by staking, but not essential in any case except that of onions. Farmers' Bulletin No. 884 gives directions for the home production of seed of these and other vegetables.

BLIGHT OF TOMATOES.

Preventive Measures for Control of Troublesome Disease in Rocky Mountain and Pacific Coast States.

Preventive measures that should be taken against western blight of tomatoes, a troublesome disease which occurs in the Rocky Mountain and Pacific States, are described in a recent statement from the United States Department of Agriculture. The disease, Federal specialists explain, is distinguished by a marked upward and inward curling of the leaves, by a yellow color of stems and foliage, and by failure of the plants to produce fruit. It is believed to be due to a soil fungus which attacks and kills the feeding roots. This parasite can live on organic matter in the soil and is beyond the reach of sprays. Control, therefore, is difficult and has not as yet been fully accomplished. The following precautionary or preventive measures are advised:

Preventive Measures.

Grow the tomato seedlings in soil in which tomatoes have shown no symptoms of the disease or in soil sterlized by steam or boiling water.

There is some advantage also in setting out large plants, as they make considerable growth before the fungus invades their tissues, and therefore produce fruit.

It should also be helpful so to grow the plants that their roots will not be injured in transplanting. Although a parasitic fungus can invade uninjured tissues of its host plant, it usually enters more readily through wounds. If from the seed bed the plants are pricked off into paper pots, dirt bands, or paper drinking cups without bottoms, they can be grown to considerable size and transplanted to the field without removing the paper or injuring the roots. This is also a convenient and relatively economical method of doing the work.

Rotations Effective.

One of the most effective means of controlling tomato blight is the use of other crops in rotation with tomatoes. As the parasite is unable to live on other crops, it is obliged to exist saprophytically; that is, living on dead or decaying organic matter, in competition with other fungi. This does not entirely eliminate it, but greatly reduces it in quantity. To prevent its accumulation, tomatoes should not be grown on the same land oftener than once in four or five years.

The breeding of blight-resistant varieties is the most hopeful means of controlling this disease. Some preliminary tests of resistance are now being made with a view of developing a resistant variety, but every grower should also make selections for himself. Select from a badly infested part of the field only the plants that are free from the disease, and plant the seed of each selection in a separate row or plat. Determine the relative merits of the selections from the average disease resistance and yield and quality of fruit of their progeny. Do not mix selections nor save seed from any but the one that transmits the most desirable qualities to its progeny. When this is found multiply it and use it as seed for the field crop.

USE LOCAL SUPPLY OF LIME.

When lime is properly used, it is a great aid in speeding up the production of many crops. While it is not usually listed among the commercial fertilizers, it furnishes a necessary food for plants. It also corrects acidity of the soil and improves its physical condition. It also influences favorably the decomposition of the organic matter in the soil, and in some cases it may make available to a slight extent insoluble forms of potash and other minerals. It is particularly valuable if there is a good supply of organic matter in the soil.

Spring is a good time to apply lime, particularly the hydrated form, and specialists of the Department of Agriculture are urging that local limestone deposits be utilized in every possible way. This is already being done in many places, but no doubt the practice could be very widely extended. However, it involves, in the case of grinding, the purchase and delivery of grinding machinery, which may be difficult to accomplish, and in the case of local burning it means the purchase and delivery of fuel unless there is local fuel available. Wherever fuel, either wood or coal, is available, however, together with a local supply of limestone, every effort should be put forth to make use of this limestone in the present emergency.

As far as possible, the interior fixtures of a poultry house, such as roosts, nests, dust boxes, drinking fountains, feed troughs, and grit boxes, should be so constructed as to permit them to be readily removed and cleaned.

The transportation situation is still serious and shippers of foodstuffs are reminded that patriotism demands of them the heaviest loading possible consistent with the safe carriage of the goods. The failure of one shipper to load cars to the maximum may prevent other shippers from getting any cars at all, with the consequent loss of those foodstuffs on which the winning of the war depends.

GET GOOD CLOVER SEED.

Save Money and Insure a Good Stand by Buying Seed Labeled as to Purity and Germination.

Don't take any chances with the quality of red clover seed you sow this spring. It will mean dollars in your pocket to know before you plant what per cent of it may be expected to grow. If the seed dealer has not labeled it as to germination, take two dinner plates and a moist cloth and test the seed yourself. Or the Seed Laboratory of the United States Department of Agriculture will be glad to test a sample free for quality, including percentage of purity and germination.

Buy Labeled Seed.

The seed trade voluntarily agreed last year to label all field seeds with the percentage of pure seed that will grow, giving the purchaser exact information as to quality. The Department of Agriculture urges all farmers to buy their seeds only from dealers who comply with this agreement and not to run the risk of buying high-priced unlabeled seed that will not give a stand in the field. It is especially important this year, when red clover seed is high in price—$20 or more a bushel—for the farmer to know what proportion of the seed he buys can be expected to grow. If one lot contains 96 per cent of seed that will grow and another lot 64 per cent, it will take 3 bushels of the 64 per cent seed to sow the same number of acres that 2 bushels of the 96 per cent seed will sow. Even more important, therefore, than the money saving possible, is insuring a stand in the field by sowing live seed.

How to Test Seed.

This is the way to test clover seed for germination: Count out 100 seeds and put them between the folds of moist paper or cloth which is placed between two dinner plates. Keep this tester at room temperature for four days and then count the sprouted seeds. If 95 seeds sprout the seed is good; if only a small part of them sprout, the seed is either poor or the test was not properly made. If for any reason the germination is poor, a sample of the seed should be sent to your State agricultural experiment station or to the Seed Laboratory, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C., with the request that it be tested for quality, including percentage of purity and germination.

Simplicity in farm machinery is important. Complicated parts cause trouble and are difficult to repair when a machine or implement gets out of order.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., APRIL 3, 1918. No. 35

SOW WHEAT EARLY.

Safeguard Spring-Wheat Crop by Sowing Early and Using Early-Maturing Varieties.

With spring wheat so important as a source of war food this year, every possible precaution should be taken to safeguard this crop. Early sowing and the use of early-maturing varieties, the specialists of the United States Department of Agriculture point out, are the best safeguards. Early sowing gives this plant the advantage of the cool weather of early spring most favorable to its growth and affords the best protection against rust, which develops rapidly when the weather is both hot and moist, and the droughts, hot winds, and hailstorms of summer. Early sowing is discussed for the region east of the Rocky Mountains and that to the west of the Great Divide.

How Early to Sow.

Sowing on land prepared in the fall, or on corn land, should begin just as soon as frost is out and the ground dry enough to work. Seeding should be continued as rapidly as possible, but no longer than for a period of about four weeks. After this period wheat production usually is not profitable. In general, yields will decrease directly with the lateness of seeding. A clean, deep, and firm seed bed is important, but no more so than early seeding.

The actual date varies somewhat, of course, in different years and generally in different parts of the country in any season. Careful surveys to determine the average date when spring-wheat seeding begins and when it becomes general have been made by the Office of Farm Management in cooperation with the Bureau of Crop Estimates.

The Hard Spring-Wheat Belt.

Normally this includes the States from Montana, Wyoming, and eastern Colorado on the west to Minnesota, Iowa, and Wisconsin on the east. In 1917, however, some hard spring wheat, mostly Marquis, was grown in the northern part of Illinois, Indiana, and Ohio, as well as in New York and upper New England. It seems probable that the acreage will be increased in these States in 1918.

When seeding usually begins.—In the southern part of this spring-wheat belt of the Central States it begins as early as March 30. At this date it is commenced in the northern half of Nebraska and Iowa, and the northern third of Illinois, Indiana, and Ohio. During the following 10 days it begins throughout most of South Dakota and in Minnesota south of the Missouri River, also in eastern Wyoming and southeastern Montana. By April 11 it is beginning throughout eastern Montana, most of North Dakota, except the northeast corner, and in central and southeastern Minnesota, and the southern half of Wisconsin; also in New York. By April 21 seeding has begun in northeastern North Dakota, northwestern Minnesota, and most of northern Wisconsin, also in parts of New York and New England.

When seeding usually becomes general.—On the average, seeding becomes general about 10 days after it begins. Seeding becomes general in eastern Colorado, southern and eastern Nebraska and southern Iowa usually about April 1. By April 11 seeding has become general over much of South Dakota, Iowa, and southwestern Minnesota. In Montana, central North Dakota, and central Minnesota seeding becomes general about April 21. Seeding ends usually from 10 to 20 days after it becomes general. The usual duration of the period from beginning to end of seeding varies from 20 days in Nebraska and western Iowa, where the acreage is small, to 30 days or more in Minnesota, North Dakota, and Montana, where the acreage is very large.

THE United States and the Allies, using the proceeds of the Liberty Loan, are the largest purchasers of American agricultural products. In supporting the Loan, the farmers are enabling their best customers to purchase goods and at the same time securing the best investment in the world.

BUY LIBERTY BONDS

Seeding in the Far West.

In the Rocky Mountains and westward the opening of the seeding season varies greatly with the elevation as well as with the latitude. This makes a discussion of average dates of seeding almost impossible. The principal sections of the far West growing spring wheat are the Snake River Basin of Idaho, the Columbia River counties of Oregon, the Big Bend district of Washington,

(*Continued on page 5.*)

SAVE CRIMSON CLOVER.

Seed for Sowing Next Fall Will Be in Demand—More Valuable Than the Hay Crop.

In view of the fact that the quantity of imported crimson clover seed available for sowing this fall will be much less than in 1917, it is necessary that every acre possible be saved for seed this spring. This should be done even at the expense of a hay crop, as the seed will be more valuable than the hay at this time, the specialists of the United States Department of Agriculture advise. Farmers who have fields of crimson clover should not only save sufficient seed for their own use, but should endeavor to harvest an additional supply for the market. The importance of crimson clover as a cover and soil-improving crop makes it imperative that the acreage be extended rather than reduced this fall, but in order to do this it will be necessary to harvest as much seed as possible in the crimson clover area. The price of seed was 75 to 100 per cent higher in 1917 than in 1916, and indications are that it will continue to remain high. This, together with the satisfactory yields that are usually harvested, should make it a very profitable crop.

Not only will there be a serious shortage of crimson clover seed, but the supply of seed of other winter cover crops appears likely to be below the demand.

Since equally good results have been obtained from sowing unhulled crimson clover as from the use of hulled seed, and as there will undoubtedly be a good demand for unhulled seed, it will not be necessary to thresh the crop in all cases. However, hulled seed is more desirable than seed in the hull, as it may be handled and sown with less difficulty. The handicaps under which crimson clover seed production in this country has labored have necessitated the importation of much of the seed that is annually sown. This is especially true in the South, where few clover hullers are found.

Home-Made Stripper for Gathering Seed.

The commercial production of crimson clover seed in this country is somewhat handicapped by frequent untimely rains which occur after the crop is cut and before the services of a huller can be obtained. A considerable acreage in a given locality is

required to justify the presence of a huller. Where the acreage is not sufficient to warrant the purchase of a huller, a stripper should be employed, as it can be made on the farm from readily available material at the expenditure of a few dollars, thus making it possible for anyone with a crimson clover field to obtain seed for reseeding purposes.

A home-made device for gathering crimson clover seed, which the farmer may make and use with a small outlay of time and money, is described in Farmers' Bulletin 646, which may be had free of charge by applicants. This device (see accompanying illustration), which is described below, has given excellent success in the localities where it has been used the past three years. It is therefore strongly recommended that it be used in all sections where clover hullers are not found.

How to Make Stripper.

This stripper is designed to be hung on the axle A between two wheels, which, however, are not shown in the drawing. The iron hooks G are used for attaching the stripper to the axle. The hooks G should be of such length as to allow the bottom of the stripper to miss the ground by 6 inches. The handle M permits the teeth to be raised or lowered to catch the heads at the proper height. The limits through which teeth may be raised or lowered are fixed by means of the slot F. This prevents either the front or back of the machine tilting enough to strike the ground. When it is desired to hold the stripper rigid, the removable bolt C can be taken out and inserted in one of the holes E. Bolt D should fit loosely in the bottom of board B to permit easy action of the attachment. It is necessary to have the plank N to which the whiffletree is attached fastened to the shafts far enough in front of the teeth to prevent the horse's hoofs from coming in contact with the teeth of the stripper. The teeth are sawed out of oak boards, which in turn are nailed to planks H and K. About 2 acres a day can be gathered by one of these machines.

Various Widths of Comb.

The comb stripper illustrated herewith can be made any desired size ranging from 1 foot to 10 feet in width, depending on the quantity of seed to be gathered. The hand strippers as described in detail in the bulletin are usually about 1 foot wide with the teeth 10 inches long. The particular stripper illustrated is 3½ feet wide. This is a convenient size where seed for 3 to 20 acres is desired. Where seed for less than three acres is to be gathered it can be stripped by one of the hand strippers or even by hand.

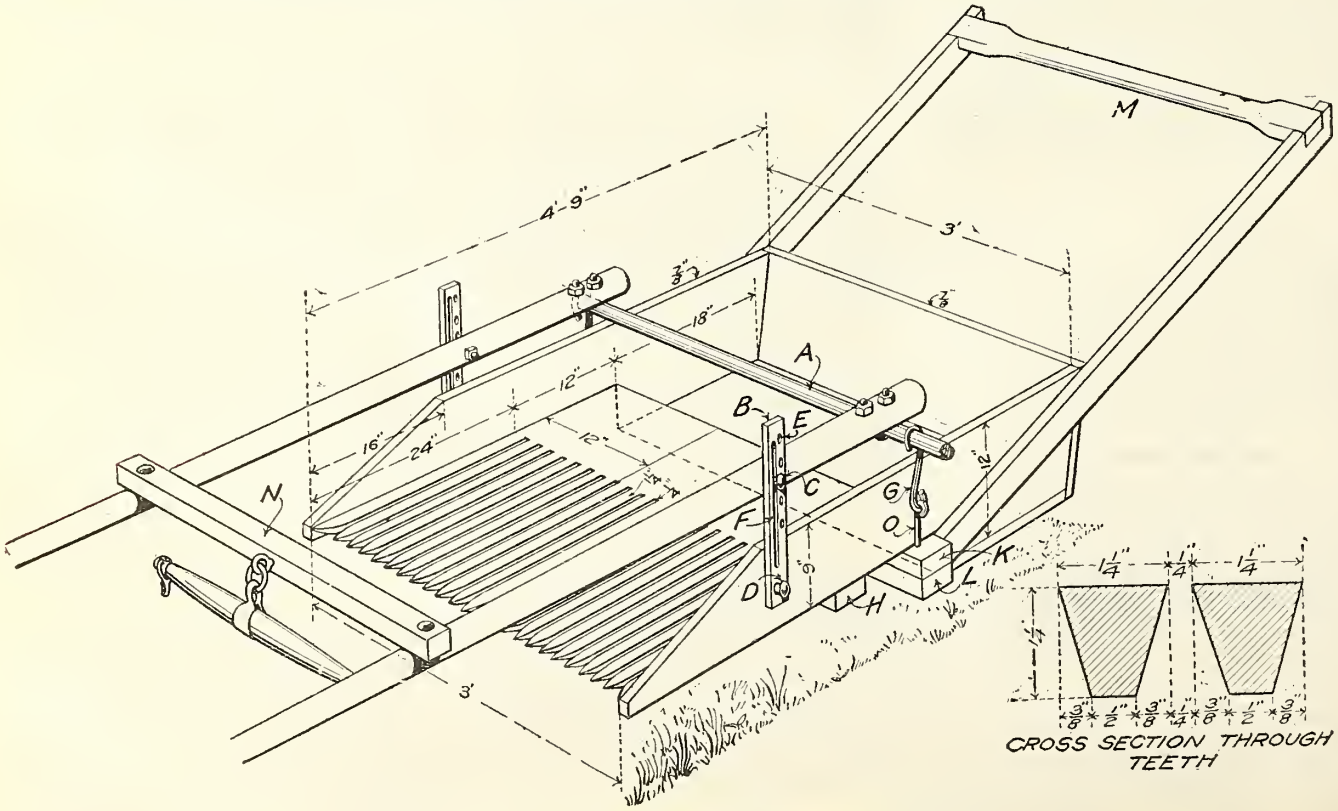
The stripper 3½ feet wide can be easily swung on the axle of the wheels taken from an old buggy, between the hind wheels of a buggy, or even between the hind wheels of a farm wagon. This width is especially recommended when the special fields on which it is to work are in sections not connected by wide roads, as it can be taken along any ordinary wagon road on its own wheels. If necessary, one man and a horse can operate the machine to good advantage, although a boy to assist in bagging the seed and cleaning the teeth when they become choked up is desirable. A wider stripper, made in a similar manner, may be swung between hayrake wheels or set up on wheels of iron or wood. If these wheels are 18 inches or less in diameter, the stripper can be placed above the axle.

It is necessary that the seed be fully ripe in order to strip easily, and it is also desirable that the ground be given level tillage in order to facilitate the operation of the stripper.

Too much emphasis can not be laid on the importance to the individual farmer throughout the Middle Atlantic and Southern States of the seeding of largely increased acreages of crimson clover or similar winter legume cover crops.

One creamery, during six months last year, returned over $1,000 worth of sour milk and cream to dairymen. The use of $25 worth of ice would have prevented this great food loss, according to dairy specialists of the United States Department of Agriculture.

The poultry building should not be so wide that the rays of the sun can not reach the back of the interior of the house. Otherwise it will be damp. Fourteen feet is a convenient width.



WORKING DRAWING OF CRIMSON CLOVER SEED STRIPPER.

CITIES AND FARM LABOR.

Assistant Secretary Ousley Makes Statement to Committee on Agriculture of United States Senate.

Clarence Ousley, Assistant Secretary of Agriculture, has issued the following summary of the statement concerning crop plantings and labor needed for cultivating and harvesting the crops of 1918, which he made to the Senate Committee on Agriculture, March 13, 1918:

"I am receiving many letters concerning newspaper reports of my testimony before the Senate Committee on Agriculture on March 13. These letters show that what I said has been reported in such a manner as to convey a false impression in many respects. It is impossible for me to answer every letter and to discuss every angle of the subject, but for the information of all inquirers I furnish the following summary of what I said on the subject of crop acreage and the labor necessary to cultivate and harvest the crops in 1918:

"If the law of averages holds good, there will be approximately as much land under the plow this year as last year, and I am inclined to believe that in the aggregate the acreage will be increased. Since the latter part of January I have visited the Northwest from Minnesota to Puget Sound, and the South from Texas to Georgia. In the Northwest, of course, there were no plantings, but I found a general purpose, notwithstanding labor difficulties, to equal or increase acreage. In the South I found the same purpose already partly in effect. It may be assumed that what the farmers of the Southwest and of the Northwest intend to do the farmers of other regions also intend to do.

The Wheat Acreage.

"The winter-wheat acreage last fall was increased 4 per cent and would have been increased 15 to 20 per cent but for dry weather in a considerable part of the winter-wheat belt. The prospect at this time is for an increase of spring-wheat acreage of 5 to 15 per cent. In the South, the early plantings carry a generous proportion of food and feed crops, and if the spring is favorable there is no reason to doubt a maintenance of this proportion.

"In many of the trucking and market-garden regions, especially those surrounding busy industrial centers, there is likely to be a considerable decrease in truck-crop acreage because of labor difficulties, but in many of these regions much of the land will go into staple crops. This readjustment of farming operations in the trucking regions is likely to cause a smaller yield of perishable products, but on the other hand the home-garden movement is in full swing, and if every man who can do so will make a reasonable effort to raise a garden there need be no lack of vegetables.

"Of course no man can say what the harvest will be, for the yield will depend upon the weather and upon the labor available for cultivation and harvesting.

The Problem of Farm Labor.

"The principal difficulty in farming operations for 1918 is the problem of farm labor. That is serious, but it is not insuperable. The Department of Agriculture has farm-labor offices in nearly all of the States, working in cooperation with the agricultural colleges, the county agents, and other State activities, and the Department of Labor has employment offices in nearly all the centers of population. These two departments together are enabled to contribute much to the solution of the problem by furnishing information and by shifting labor from neighborhood to neighborhood as the seasonal demand passes, and generally by bringing together the laborer and the employer. But when all has been done that may be done by these departments or by any other governmental agency, much will remain to be done by the States and communities, especially by the cities, for there is not enough labor seeking employment to supply the farms for cultivation and harvesting.

The Duty of the Cities.

"For years the cities, with their great fortunes and bright lights, have been drawing young men from the farms. The war has merely precipitated a drift that sooner or later would have caused more or less of a food crisis. In peace times that is a matter that might well be left to readjust itself through such reduced production and consequent high prices as would make farming more profitable and attract men to the industry. But in the war emergency we must have food at all costs, and since there is no way of getting it without labor, and since labor is lacking, the cities must sacrifice something of their comfort and furnish the necessary man power to cultivate and harvest the crops. In many towns and cities last year the business men closed their establishments or spared numbers of their employees to help the farmers. In a few places already business men are taking surveys and are making pledges to furnish labor which has farm experience to the adjoining communities as may be needed. The same methods must be put into practice in every town and city adjacent to a farming region.

The Vital Place of Agriculture.

"The men of the cities must be brought to understand the vital importance of agriculture. Many of them have sneered at it or have regarded it with indifference. Now they must lend it much of their thought and their effort. They should understand that the United States is going to furnish food to the armies and the civil populations behind them, and they may depend upon it that the farmers will feed themselves. It behooves the cities therefore to take some thought of their own sustenance by readjusting their activities.

"There is hardly a business or an industry in the United States that can not spare temporarily for the cultivating and harvesting seasons a considerable part of its man power, or even close, say, for 3 to 15 days during the period, as the local need appears. In many such cases women can take the places of men for the lighter commercial and industrial tasks so that the men who have farm experience may be available for farm needs. In many cases women can do light work on the farm, such as dairying, cultivating vegetables, and gathering fruit. The details must be worked out by each community. It is not possible to devise a general system, because conditions vary on every farm and in each neighborhood.

Full Utilization of Man Power.

"In many of the industrial centers wages are so high that a large number of men are content to work only a part of the time. Either by public sentiment or industrial regulation—if need be by vagrancy laws—there must be a full utilization of man power. It is not possible for the national Government to compel or even to direct such readjustments. There is not wisdom enough in this Congress or in any Congress that could be assembled to solve all these local and regional problems. States, communities, and individuals of influence must take responsibility. Washington can not create labor and should not compel employment. Local initiative and local responsibility must be exercised to the fullest extent.

"The farmers will do their full duty in planting. The governmental agencies will do all that they can do, and we may reasonably expect a normal season. If the people of the communities, especially of the cities, will assume their part of the burden, there need be no doubt of the result, but if the cities persist in plunging for profit and in enjoying their ease, expecting the Government and the farmers to work miracles, then those who are neither fighters nor producers may suffer some privation."

There are few combinations of feed which are more economical than a ration of corn silage and cottonseed meal for wintering stocker cattle. One pound of cottonseed meal per day combined with what corn silage stocker steers will eat will cause them to gain slightly in weight.

Economize by spending less money at the meat shop by buying cheaper cuts and spending more time in cooking the cheaper cuts.

BANISH THE BARBERRY.

Common Barberry a Menace in Spring-Wheat States—Spreads Rust to Wheat and Other Grains.

The common barberry is a direct spreader of black stem rust, a terrible scourge of wheat, oats, barley, and rye in the spring-wheat districts. Common barberry on lawns and in hedges in cities and suburbs, as well as on farms, throughout these districts is a fearful thorn in the side of the wheat raiser.

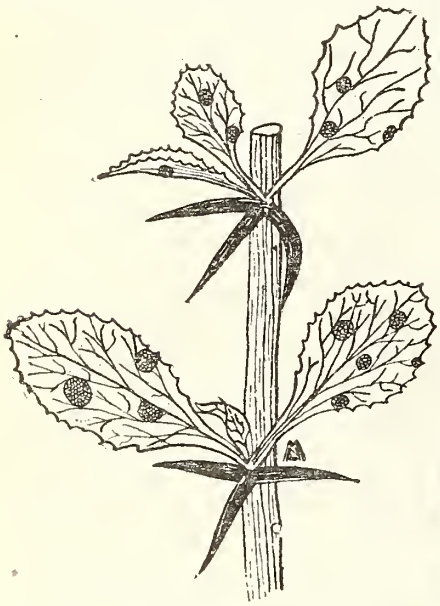


FIG. 1.—Common barberry, showing cluster cups on the leaves. Note the three-forked spines and the irregular edges of the leaves.

The presence of this shrub in your yard may mean that your county or district produces less bread to feed the Nation and the allies. While the farmers are being urged to take every cultural and protective measure to prevent rusting of their fields, owners of city yards and estates are called upon to help by digging out and destroying this spreader of stem rust.

How serious the black rust is to the bread supply of the nation may be judged from the fact that this disease was the principal factor in reducing the yield of wheat alone in North Dakota, South Dakota, Montana, and Minnesota by nearly 200,000,000 bushels in 1916. Wherever grain is raised the presence of the common barberry bush may mean less bread. Get rid of the barberry bush, and the farmers will be encouraged to practice early seeding, use of proper varieties of grain, effective soil management, and clean culture, which help keep this blight from the fields.

Common Barberry Spreads Rust.

The common barberry bush (*Berberis vulgaris*), including the purple-leaved variety, nurses the black stem rust through one of its stages, helps it develop, and enables it to spread to the grains in the spring and early summer. (See figs. 1 and 2.) The most direct method of attacking this rust is to keep common barberry bushes out of wheat-growing regions. No more common barberry bushes should be planted; those now growing should be destroyed by May 1 in order to protect this year's crop. Less barberry means more bread.

The effect of a single barberry bush may extend for miles. They should be dug and destroyed throughout the upper Mississippi Valley, especially in the following States: Montana, Wyoming, Nebraska, South Dakota, North Dakota, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Michigan, and Ohio. Less is known about the importance of barberry elsewhere. The question will be investigated in all grain-growing regions this season.

Japanese Barberry Harmless.

The Japanese barberry (*Berberis thunbergii*) does not rust; it is harmless and need not be destroyed. It is more beautiful, both in summer and winter, than the common barberry and can be distinguished from it quite easily. The edges of the leaves of the common barberry are toothed, while those of the Japanese barberry are not; the spines of the common variety are usually in groups of three while those of the Japanese are usually single. (See fig. 3.) Both have red

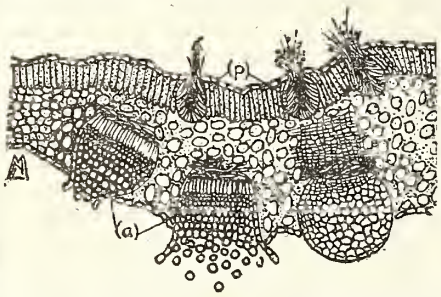


FIG. 2.—Cross section through barberry leaf, showing cluster cups containing a large amount of spores ("rust seeds") at (a) and other rust structures at (p).

berries, but those of the common form are borne in racemes like currants, while those of the Japanese form are borne singly like gooseberries.

Destruction Prevented Rust in Denmark.

Black stem-rust has not been serious in Denmark since barberry bushes were eradicated. A law providing for compulsory destruction of barberry bushes by owners was passed in Denmark in 1903. The rust had been serious periodically up to that time, but it has ceased to be destructive since the barberry bush was banned by law.

Barberry Laws in North Dakota and Manitoba.

Destruction of common barberry bushes is required by law in North Dakota and Manitoba. These laws were passed in 1917. It is too early to know their effect on the rust, but it is safe to say that if neighboring States follow the example we shall have more wheat for the allies and ourselves.

Other Methods of Preventing Rust.

Most good farmers know that proper cultural practices will reduce the severity of rust attacks. Conditions should be made as favorable as possible for the grain, and as unfavorable as possible for the rust. This can be done in various ways.

Select good land.—Sow grains on high, well-drained land. Avoid pockets; rust is likely to be more destructive on low, poorly drained soils. The moisture does not cause rust, but enables it to spread rapidly.

FIG. 3.—Japanese barberry. Note the simple spines and the entire edge of the leaves. This barberry does not rust.

Seed early in a good seed bed.—Grain which ripens early often escapes rust. Seed early on thoroughly prepared land, thus giving the grain a chance to ripen before the heavy attacks of rust occur. A week's difference in ripening often means the difference between a good crop and a poor one.

Avoid excessive applications of manure.—Overfertilization with nitrogen is likely to cause heavy, weak straw development and delayed ripening. When such plants rust they usually crinkle badly and yield poorly.

Destroy wild grasses.—Many wild grasses are pernicious breeders and spreaders of rust and should not be allowed to grow. Squirrel-tail grass (wild barley), quack grass, slender wheat grass, western wheat grass, and the wild rye grasses often rust badly, even in years when grain crops do not rust severely. This enables the rust to persist more easily from one season to another. It also enables the rust to spread more widely in any given season. Clean cultivation is one method of fighting rust.

Use early maturing or resistant varieties.—Some varieties mature early and escape rust. For this reason Marquis wheat may ripen before rust becomes severe in the spring-

(*Continued on page 7.*)

WORMS IN PIGS.

Specially Important to Protect Newly Farrowed Pigs from Intestinal Parasites.

Recent investigations have shown the importance of taking special precautions with newly farrowed pigs to prevent their becoming infested with intestinal worms. Intestinal worms are very common parasites among pigs, and cause a great deal of damage to the young animals. It appears that as they become older pigs become less susceptible to infection. Accordingly, if pigs can be protected from infection during the first few weeks of life they are less likely afterwards to be seriously injured by intestinal worms of the common variety.

How Pigs Become Infested.

The worms are spread by means of eggs of microscopic size which are deposited by the adult worms in the intestines of infested pigs, and which pass out of the body in the feces. After a period of incubation which varies according to temperature and other conditions, the egg contains a tiny embryonic worm, and is ready for further development when swallowed by a pig. The eggs are highly resistant and may retain their vitality for years. It is therefore evident that in course of time the ground in yards where pigs are kept may become very heavily laden with the eggs of the worms.

When the eggs are swallowed the young worms hatch out, but do not immediately settle down in the intestine. They get into the circulation and are carried to various organs of the body, including the lungs. Meanwhile they increase somewhat in size and undergo certain changes of structure. In a week or 10 days they can be found in infected pigs examined post-mortem crawling up the windpipe into the mouth and down the esophagus into the stomach. In the normal course of events they finally reach the intestine again, where they develop slowly to maturity. The worms as they are found in the lungs and windpipe are still very small, microscopic in size, and are not to be confused with the larger lung worms, which are easily seen with the naked eye. Small pigs if their lungs are invaded by large numbers of the young intestinal worms are liable to develop pneumonia, which may prove fatal. It is not improbable that many cases of lung trouble among young pigs are caused by these worms.

Important to Protect New Litters.

In view of the discoveries concerning the mode of infection with the common intestinal round worm, the damage caused by the young worms as they migrate through the lungs, and the great susceptibility of very young pigs to infection, the special importance of protecting newly farrowed pigs from these parasites is evident. It would seem that the chief source of infection in the case of young pigs is the dirt-soiled skin of the sow. Small particles of dirt from the pigpen adhering to the skin of the sow may contain thousands of worm eggs. Little pigs while suckling may thus swallow not only their mother's milk, but also the worm eggs present in the dirt adhering to the teats of the sow.

The question of preventing losses among young pigs by worms, judging from the results of the investigations carried on in the Zoological Division of the Bureau of Animal Industry, largely resolves itself into a question of providing good sanitary conditions for the pigs, particularly during the suckling period. The sows before farrowing should be kept in clean, dry places away from mud wallows, and until the pigs are several weeks old they should be kept preferably in buildings and pens with floors which can be easily cleaned and which are kept clean.

SOW WHEAT EARLY.

(Continued from page 1.)

and the Palouse district of Washington and Idaho.

In the Snake River Basin of southern Idaho seeding begins in favored localities as early as the middle of March, but over most of the basin it usually begins between the 1st and 10th of April. Seeding of spring wheat becomes general in this basin from the middle of April to as late as early May, depending on elevation and other factors.

The Columbia Basin counties of north-central Oregon have elevations mostly between 1,500 and 3,000 feet. In favored localities at the lower elevations seeding may begin as early as the middle of February, and at any time from March 1 to the middle of April, depending on the elevation, exposure, etc. Seeding usually becomes general in this district between the 25th of March and the 1st of April.

In the Big Bend district of Washington, with elevations varying from 1,000 to 2,000 feet, seeding usually begins from the middle to the end of March, although in favored localities it may begin as early as late February. Seeding becomes general in the middle of March to the 1st of April at the lower elevations, and from April 1 onward on higher elevations.

In the more humid and more elevated Palouse district, lying between the Big Bend district and the mountains of Idaho and Oregon, seeding begins at any time from the middle of March to April. It becomes general usually during the first half of April.

Remember that eggs produced by the back-yard flock cost very little, as the fowls are fed largely upon waste materials.

POWDERY DRY-ROT.

Causes Heavy Losses of Potatoes as Result of Injury in Harvesting and Carelessness in Handling.

The attention of potato growers and shippers is called to the heavy and unnecessary losses to potatoes from decay in shipments now arriving in the markets of the Central States, particularly in Early Ohios originating in the Great Plains and Rocky Mountain States.

It is not uncommon for the inspectors of the United States Department of Agriculture to find from 10 to 50 per cent of the contents of a car unfit for market on account of powdery dry-rot (Fusarium), and the reports are becoming more frequent and the losses more severe as the storage season progresses.

The remedy for this situation must be applied at the point of origin, by sorting out all potatoes showing any trace of decay, cuts, or bruises, and by careful handling to prevent further injury.

Powdery dry-rot is caused by a fungus or mold which attacks potatoes, as a rule, after harvesting, and then only when they are bruised or cut by careless handling.

How to Detect Powdery Dry-Rot.

Affected tubers have sunken, shriveled, wrinkled, or broken areas on their surface, which may be dark brown to black in color, and on them may appear masses of whitish or bright-colored mold. The interior of those areas is made up of dried, brownish tissues, of starch, and a whitish to bright-colored, fluffy, or powdery growth of mold lining the extensive and numerous cavities that are present. It is this mold that is responsible for the rot. In the early stages the affected tissue is black to light brown in color and is sharply set off from the healthy tissue by a brown to black line of corky tissue. Severely affected tubers are much lighter in weight than healthy ones because of the extensive hollow areas. Often the entire heart of a tuber may be rotted out, leaving merely a shell of sound tissue.

At times, especially if kept warm or in a moist atmosphere, or if infected with bacteria, the typical symptoms are partly obscured by the presence of soft, watery tissues of chocolate to sepia color, which generally are more extensive than the typical dry areas and precede these into the tuber.

The mold or fungus is able to live over in the soil, in storage places, in sacks, and in cars, and, consequently, bruised and cut tubers are subject to infection from the time they are dug until they reach the consumer.

Handle Potatoes Carefully.

Potatoes should be handled carefully and not as though they were cobblestones. The potato is a living thing, endowed with a

protective skin, which it is able to keep intact if given a fair chance. Breaks in this protective skin, caused by deep peeling or feathering, prevalent in immature stock, by tools or other agents, are the natural points of entry for this mold. Once it gets into a tuber and is given proper temperature and moisture conditions, the tuber is subject to complete decay and is a source of infection for all its neighbors. Storing potatoes in a dry, well-ventilated place at a temperature between 34° and 38° F. retards the progress of the rot. The powdery dry-rot can develop at lower temperatures than most other tuber rots.

Begin to Protect Crop at Harvest.

The protection of the crop should begin at the time of harvesting, to insure against any injury that will break the skin of the potato. Growers should also bear in mind that this type of rot has been prevalent for years and that storage houses and baskets, barrels, and other old containers are likely to be covered with spores capable of infecting the new crop. It will therefore be a wise precaution to clean out all rubbish and refuse from the preceding crop and to disinfect the houses and their contents by washing or spraying, before any potatoes are put in, with a solution of bluestone, 2 pounds to 50 gallons of water, or formaldehyde, 1 pint to 12 to 15 gallons of water.

After the potatoes are stored they should be kept cool and well ventilated. Do not store in deep piles.

Advantage of Selected Stock.

The shipper should bear in mind that unsorted or field-run stock that shows more or less dry-rot will develop more while en route to market, and that he will eventually have to pay for these losses, for the freight on the spoiled stock, and for the labor of re-sorting at the terminal market. The reputation of his district is also unfavorably affected.

The attention of potato shippers is also called to the food-products inspection of the Bureau of Markets, through which they may secure an official certification as to soundness of their car-lot shipments upon application to the food-products inspectors at Boston, Mass.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Dallas, Fort Worth, Galveston, and Houston, Tex.; Jacksonville, Fla.; Jersey City, N. J.; Kansas City, Mo.; Memphis, Tenn.; Minneapolis, Minn.; New Orleans, La.; New York, N. Y.; Oklahoma City, Okla.; Philadelphia, Pa.; Pittsburgh, Pa.; Providence, R. I.; St. Louis, Mo.; St. Paul, Minn.; and Washington, D. C.

By keeping a back-yard poultry flock the family would not only help in reducing living costs but would have eggs of a quality and freshness which are often difficult to obtain.

FARM PRODUCT VALUES.

Nearly Doubled in the Past Two Years—Corn Crop Exceeds Four Billion Dollars.

In the years when cotton lint was sold by farmers at a low price, and when cotton seed was little used and was more likely a waste and a nuisance, the cotton crop was outranked in value by corn, hay, and usually by wheat, so that it was commonly the fourth crop in order of value. By 1899 cotton had taken precedence of the wheat crop, although the exceptional situation during the first two years of the present war gave wheat the higher place. Gradually the cotton crop, lint and seed, climbed over the great hay crop, and thus has cotton become in recent years second only to corn.

Corn Leads Cotton.

The corn crop of the United States is by far the most valuable agricultural product. When the colonists at Jamestown and Plymouth were saved from starvation by the corn provided by the Indians, this was a common Indian crop east of the Great Plains, and its annual production at that time has been estimated to have been possibly 2,000,000 bushels.

Corn at once became the mainstay of the agriculture of the whites, and the value of this crop, at farm prices, according to the estimate of the United States Department of Agriculture, reached the extraordinary total of $4,054,000,000 in 1917 for 3,159,000,000 bushels, the largest and most valuable crop of corn ever grown. The cotton crop is next below in value, with an estimated production of 10,949,000 bales of 500 pounds gross weight, worth at the farm $1,518,000,000. When $327,000,000 is added for seed, the aggregate value of the cotton crop of 1917, at farm prices, becomes $1,845,000,000.

Hay Exceeds Wheat.

Hay is not the joke that the funny writers would have it. Indispensable to proper crop rotation and to stock keeping, hay often contended with both cotton and wheat for a place next to corn in value, but in the order of crop values in recent years it has a settled third place, below corn and cotton, and usually above wheat before the present war. In 1914 to 1916 it was slightly exceeded in value by wheat, but it resumed its third place with emphasis in 1917, when the value of the crop was $1,567,000,000 for 95,000,000 tons, both quantity and value making the highest record, while the wheat-crop value was $1,307,000,000 for 651,000,000 bushels.

Oats a Billion Dollar Crop.

Oatmeal was only for the sick, many years ago, and was sold by drug stores; now, this food, more especially in the form of rolled oats, has become an important item in the general human dietary, and horses and other live stock share the large crop with their owners. In both production and value the oats crop of 1917 exceeds that of every former year, and the 1,587,000,000 bushels have a farm value of $1,061,000,000. This is regularly the fifth crop in order of value.

Potatoes a Record Crop.

The potato crop of 443,000,000 bushels in 1917, the record crop, has a producers' value of $554,000,000. A very rough estimate gives the value of $298,000,000 to the log, lumber, and wood production of the farm. This is the production of what is often called the farmer's wood lot, but in some parts of the country the "lot" is often a sizable forest.

The tobacco crop of 1917, also, is at the top of the record, the 1,196,000,000 pounds being worth $297,000,000 to the farmers. Below this, in order of value, follow the barley crop with a farm value of $237,000,000; apples, $213,000,000; kafir corn and milo maize, $131,000,000; dry edible beans, $111,000,000; peanuts, $107,000,000; and rye, $100,000,000.

Minor Crops Worth Millions.

Every other crop has a value less than that of rye. An estimated value of $96,000,000 is given to sweet potatoes; of $68,000,000 to rice; of $61,000,000 to peaches; of $46,000,000 to sugar beets; of $39,000,000 to onions; of $35,000,000 to cabbages; of $34,000,000 to oranges; of $28,000,000 each to sugar cane and buckwheat; of $25,000,000 to flaxseed. At the lower end of the scale are "sorghum cane sold" (largely for forage) and sirup, $24,000,000; clover seed, $17,000,000; broom corn, $16,000,000; and pears, $15,000,000.

The grand aggregate farm-crop value of 1917 is $13,610,000,000, an increase of 97 per cent over the $6,907,000,000 of 1915, or nearly a doubling in two years.

COOP FOR HEN AND CHICKS.

Confine the Mother Hen and Save Loss of Chicks.

If the mother hen is allowed to range unrestricted with her chicks, she frequently takes her brood through wet grass and as a result some are chilled and die, especially the weaker ones, which are likely to be left behind. Where this careless system of management is practiced, the loss of young chicks is large. When a coop is provided for the hen, such losses are largely prevented.

Any style of coop which is dry, ventilated, and can be closed at night to protect the brood against cats, rats, and other such animals and which while confining the hen will allow the chicks to pass in and out freely after they are a few days old will be satis-

factory. The hen should be confined until the chicks are weaned, though a small yard may be attached to the coop, if desired, to allow the hen to exercise. The fence can be raised from the ground far enough to allow the chicks to go in or out, but not high enough for the hen to escape. By using a coop the chicks can find shelter and warmth under the hen at any time, and the weaklings after a few days may develop into strong, healthy chicks.

Keep Coops Clean.

The brood coop should be cleaned at least once a week and kept free from mites. If mites are found in the coop, it should be thoroughly cleaned and sprayed with kerosene oil or crude petroleum. From 1 to 2 inches of sand or dry dirt or a thin layer of straw or fine hay should be spread on the floor of the coop. Brood coops should be moved weekly to fresh ground, preferably where there is new grass. Shade is very essential in rearing chickens, especially during warm weather; therefore, the coops should be placed in the shade whenever possible. A cornfield makes fine range for young chickens, as owing to cultivation of the ground they get many bugs and worms and have fresh soil to run on most of the time and enjoy abundant shade.

BANISH THE BARBERRY.

(*Continued from page 4.*)

wheat area. Wherever early maturing varieties otherwise desirable are available, they should be used.

Resistant varieties are rare. Many durum wheats do not rust severely, and where these have been tried successfully they should be used. Kanred, a hard winter wheat of the Crimean group, is grown in Kansas and does not rust as heavily as common varieties.

Breeding and selection work to secure rust-resistant varieties is being done by the Department of Agriculture in cooperation with several States. Although no seed is yet ready for distribution, progress is being made.

Details have been omitted in this brief discussion. Further information, however, can be obtained by writing to the Department of Agriculture, Washington, D. C., or any State experiment station.

If the chickens must be confined on account of bad weather, provide a good straw litter in which their grain feed may be scattered. This will give them exercise and keep them interested and healthy. When chickens that have been accustomed to free range are closely confined, this frequently checks their development for the time being unless they are made contented in their new quarters. Provide green feed for them also.

UNCLE SAM'S HUGE MAIL.

Answering questions is a duty and a pleasure to any department of government or any public servant, but on account of the war the correspondence of all the Government departments has increased to unheard-of proportions. In addition to the correspondence on ordinary subjects, there are a vast number of letters concerned directly with important war questions. Even with great increases in the scientific, executive, and clerical forces of the Government, it is physically impossible to collect all the information sought and answer all letters as promptly as is the rule under ordinary conditions. The public, therefore, is asked to exercise reasonable patience with regard to personal or other inquiries important in themselves but of less urgency than other matters touching on subjects of great moment and affecting the operations of large groups of people.

It is suggested that full answers to many questions now made the subject of correspondence readily can be found in the United States Official Bulletin, published daily at Washington under the authority of and by the direction of the President. This publication prints each day all of the more important rulings, decisions, regulations, proclamations, etc., as they are promulgated by the several departments and by the many special committees and agencies now in operation at the National Capital. This daily summary of important actions is posted each day in every post office in the United States and may also be found on file at all libraries, boards of trade and chambers of commerce, and at the offices of mayors, governors, and Federal officials.

It is suggested that those in need of important and current information, particularly on major war operations, first consult this bulletin. There is great likelihood that they will find in it full answers to their questions and thus be saved the necessity of writing a letter and the delay in receiving a reply, and at the same time lessen the congestion of the mails and help to relieve transportation difficulties. Every question thus self-answered makes unnecessary an additional letter to be handled by Government forces already finding it difficult to keep ahead of absolutely essential correspondence.

If the information desired is not disclosed in the Bulletin, the inquirer should write promptly so as to allow as much time as possible for reply.

FLAG IN THE FURROWS.

The Spirit of Lexington Stirs the Farmers of Montana.

Mails are too slow for the farmers to register their loyalty to the Nation. Broadwater County, Mont., flashes through the news that its farmers have planted the Flag in the furrows. No doubts, no question, no wondering about outside help. Broadwater is going "over the top" in food production, as the following exchange of telegrams indicates:

TOWNSEND, MONT., *March 9–11, 1918.*

Hon. DAVID F. HOUSTON,
Secretary Agriculture, Washington.

Complying with your request for cooperation of the farmers of the Nation through county farm bureaus, we take pleasure in informing you that a strong permanent county farm bureau was perfected in Broadwater County, Mont., to-day. We are back of you as our representative in the war cabinet and extend to you our hearty cooperation and support in the national war program for increased production of food. You can rest assured that Broadwater County will contribute its fullest production toward winning the war for democracy and permanent peace.

EXECUTIVE COMMITTEE
BROADWATER COUNTY FARM BUREAU.

WASHINGTON, D. C., *March 12, 1918.*

EXECUTIVE COMMITTEE
BROADWATER COUNTY FARM BUREAU,
Townsend, Mont.

Your patriotic offer of cooperation and support appreciated. Congratulations on organization Broadwater County Farm Bureau, in which you have laid foundation for organized agricultural development in county, both to meet present emergency and to become permanent service to yourselves and Nation.

CLARENCE OUSLEY,
Acting Secretary.

CAUTION TO DRUG-PLANT GROWERS.

The outbreak of the European war called American attention to many things, among which was that this country had become dependent upon foreign sources for its supply of crude drugs. Prices rose to high figures, and the fear of a drug famine gave grave concern. Many persons considered embarking or actually embarked in the business of growing drug plants, some of them with the idea that the enterprise would be very profitable and others with the patriotic aim of helping to prevent a shortage in necessary articles.

Precautions necessary in the growing of drug plants in the United States are pointed out in a publication of the United States Department of Agriculture on "Production of Drug-Plant Crops in the United States."

There is said to be a possibility of overstocking the restricted market for certain products, and the production by a large number of persons of small quantities of drug plants is thought to endanger the quality and uniformity of the drugs. The publication says that the main reliance in the growing of drug plants should be placed in experienced growers who have enough acreage under cultivation to justify them in keeping closely in touch with market and trade conditions.

Market white-shelled and brown-shelled eggs in separate packages. Uniform products command the best prices. Never market small or dirty eggs.

WIN-THE-WAR MESSAGE.

"South Must Produce Its Own Food and Feed" Is the Admonition to Southern Farmers.

Leading agricultural speakers are carrying to the farmers of the South a message that the United States Department of Agriculture describes as "vital and of supreme importance in enabling this country to win the war."

Their message is this: "A reduced food production in the South at this time would be a national disaster. Food for the South, produced in the South, is a vital item of national defense. The South must feed itself."

Speakers in Campaign.

Prof. W. R. Dodson, Dean of the College of Agriculture and Director of the Experiment Station in Louisiana, has been called to Washington to take charge of the food-production campaign, under the direction of the Office of Extension Work in the South. Prof. Dodson, in addition to supervising the campaign, is one of the speakers traveling through the Southern States. Other well-known men who are carrying the war message to the farmers of the South are Dr. Tait Butler, editor of the Progressive Farmer; Dr. Clarence Poe, of the Progressive Farmer; Clarendon Davis, of Huntsville, Ala.; Thomas Cooper, Dean of the Kentucky College of Agriculture, Lexington, Ky.; P. P. Garner, Mississippi Commissioner of Agriculture; Clarence Ousley, Assistant Secretary of the United States Department of Agriculture; Bradford Knapp, Chief, and J. A. Evans, Assistant Chief, of the Office of Extension Work in the South.

This southern food-production campaign has been organized by the United States Department of Agriculture in cooperation with the State agricultural colleges and other State agencies to bring home to the farmers of the South that if the South should reduce its food production this year and therefore draw more heavily on the North, there is a possibility that it might be fatal to the cause of this country in this war. The speakers are pointing out that, in addition to feeding our own people and armies, it is necessary that we furnish a part of the food for the civil population and for the armies of England, France, and Italy.

To Rouse Southern Farmers.

These are the main objects of the campaign:

(1) To awaken the farmers of the South to the necessity of the war by work and endeavor to intensity their efforts.

(2) To explain and emphasize the critical condition in which the South finds itself to-day and the great necessity for each State producing its own food and feed as a necessary measure of self-defense and national defense.

(3) To carry home the program outlined by the United States Department of Agriculture and the State agricultural institutions for the fullest possible agricultural efficiency in food production this year.

Must Produce Own Food.

The major message of the speakers, which is that "The South must produce its own food and feed," is based on these necessities:

(1) That there may be no serious privation at home.

(2) That no additional burden may be placed on transportation.

(3) That military movements may have first consideration.

(4) That surpluses grown elsewhere may be used for necessary industrial and military purposes.

(5) That the wishes of Government authorities in important war policies may be carried out and that the national defense may be strengthened.

Food Greatest Necessity.

Food is the greatest necessity, the speakers are telling the farmers of the South, and an ample supply of food should not be jeopardized for the sake of cotton, the great money crop of the South. After the living for the people on the farms and in the towns and cities has been amply provided for, the farmers are advised to place such acreage in cotton as the intensive application of labor will permit, remembering always that food can be eaten and cotton can not. In new boll weevil territory no increase in acreage is advised, and farmers are urged not to allow the high price of cotton to tempt them away from the "safe farming" program of well-balanced production.

Increase All Food Crops.

Following are items in the production program for the South:

Home gardens throughout the country villages, towns, and cities in each Southern State; more corn for live stock and for human beings; more peanuts and soy beans because of their value for vegetable oils, food for human beings, and the by-product for feed and forage for live stock; more velvet beans for feed and forage; more edible peas and beans, especially cowpeas; more hay and other forage; more sugar and sirup; more hogs and poultry and the early setting of hens to increase production; more dairy products through the preservation of all productive animals and the most intensive scientific feed; maximum production of beef, especially for local use through proper feed and the preservation of breeding stock and full use of pastures and all roughage.

LIVE DAY-OLD CHICKS MAY BE SENT BY MAIL.

Order No. 1177.

Office of Postmaster General,
Washington, March 8, 1918.

Effective March 15, 1918, section 476 of the Postal Laws and Regulations is amended by the addition of the following as paragraph 2:

"2. Live day-old chicks shall be accepted for mailing, without insurance or C. O. D. privileges, when the package in which they are contained is properly prepared and can be delivered to the addressee within 72 hours from the time of mailing."

A. S. Burleson,
Postmaster General.

SAVE AND SELL STRAW.

The removal from farms and ranges to Army camps of nearly a third of a million horses and mules has increased the market demand for straw for bedding several hundred tons per week. The prices at Army camps and large markets have naturally influenced the price of this commodity on local markets, and the straw that was formerly burned or allowed to be trampled down by stock will now bring enough on the market to leave a good margin of profit to farmers over the cost of baling and shipping. The market price of straw is now between $8 and $20 per ton, and there is a good demand for almost any kind of straw.

Farmers who are not in the habit of selling straw, but who can advantageously do so, should bale their surplus or arrange to do so during the present year. Since the War Department naturally prefers to buy from those who can furnish large quantities regularly, individual farmers can either sell their surplus through regular trade channels or unite with each other and ship cooperatively.

It is suggested that farmers consult their county agricultural agents regarding the cost of baling and shipping, the kind of straw in greatest demand, market grades, and markets.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., APRIL 10, 1918. No. 36

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing and Preparation the Next Few Weeks

NORTH AND WEST.

The Office of Extension Work in the North and West, United States Department of Agriculture, urges that the matter discussed below have immediate attention.

Garden and flower seeds; strawberry, raspberry, and other small fruit plants; and fruit trees and other nursery stock should be selected and ordered.

A cold frame, or a hotbed in the extreme northern part of the country, if made at once will provide a supply of cabbage, tomato, pepper, and other plants ready when it is possible to plant them in the garden.

All the ground should be occupied during the entire season. Slow-growing and late crops may be planted between the rows of early-maturing vegetables which will be out of the way before the later crops need all the space. Properly timed plantings of radishes, peas, corn, and other vegetables will keep a new crop coming on throughout the season.

Prepare Seeds for Planting.

Seed corn should be tested and all small grain seed cleaned so that it will be ready when planting time arrives. Before oat seed is planted it should be either sprinkled or sprayed with a solution of formaldehyde. If it is sprinkled, a pint of formaldehyde should be used to 40 gallons of water. Use one-half gallon or more of this per bushel of seed. If it is sprayed, a pint of formaldehyde should be used to each pint of water, and this quantity will suffice for 50 bushels of oats. If not sown within 24 hours after treatment, the seed oats must be spread out to dry and air. The grain, if sprinkled, will swell and it will be necessary to sow about two pecks more per acre than otherwise. Seed potatoes should be treated by immersing for 1½ hours in a formaldehyde solution of 1 ounce of formaldehyde to 2 gallons of water. The solution can be used again and again if it has not been standing too long.

Pruning.

As the fruit of the peach is borne on wood which grew the previous year, it is desirable

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MARKETING.

Some suggestions on marketing problems that may come up in the near future are offered by the Bureau of Markets:

The attention of growers is called to daily marketing reports being issued by the Bureau of Markets during the shipping season for perishables. Special daily bulletins are issued in heavy shipping areas and will include telegraphic reports on strawberries, onions, cantaloupes, tomatoes, peaches, grapes, and pears. Each report contains information on the origin and destination of carlot shipments, the prices and market conditions at large consuming centers, separate reports being issued for each crop. The reports have proved of much assistance to growers in determining where and when to market their crops.

Car Loading and Refrigeration.

With the advent of warm weather, it will be necessary for fruit and vegetable shippers to pay closer attention to car loading as affecting refrigeration in transit. Sufficient space should be left between the rows of packages to insure free circulation of the cold air from the ice bunkers. The packages should be securely stripped and braced, in order that these air passages may not be blockaded by shifting of the load. Slatted false floors (floor racks) providing a 4-inch air space beneath the load are a necessity for the proper refrigeration of heavy loads and a valuable adjunct in all refrigerator cars.

Owing to the scarcity of barrel shook, many shippers of early potatoes will sack their product this season. Care must be taken in handling and loading sacked potatoes to prevent bruising and crushing, as early varieties are particularly susceptible to decay following injuries. They must also be loaded in such a way that complete ventilation of the shipment will be insured. In some parts of the country, sacked early potatoes are loaded on end one layer high, and the second layer is loaded on end on a temporary rack a few inches above the

(*Continued on page 3.*)

IN THE SOUTH.

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

The month of April is the critical month of crop production in the South. A very considerable campaign has been conducted throughout the whole South, looking to an increased food production. There are certain very important matters affecting the Nation and the Nation's interest in this time of war to which southern farmers should give careful consideration.

In normal years before the war the South annually imported hundreds of millions of dollars worth of food and feed which she could have produced herself. Much improvement has been made along this line in the past few years, and the South is a larger producer of her own food and feed than ever before in her history. In the year 1918 we must produce a generous share of food and feed crops:

First. For local use, to insure an adequate home supply, to relieve all burdens upon other sections, to release supplies elsewhere, and to reduce to the lowest all burdens upon transportation.

Second. For marketing, to sustain the civil population of this country, to keep our Army and Navy in full fighting vigor, and to supplement the depleted resources of the nations associated with us in the war.

This Nation must feed its own civil population, must maintain an army and navy, and must help feed England, France, and Italy. A hungry people can not fight. The surest way to lose the war is for us so to plan our work in this country as to leave those who are fighting our battles in England, France, and Italy, go hungry this year. The excess food of the United States will be called upon heavily for these uses. Will the South deliberately decide to reduce its food production and therefore to call more heavily upon supplies from the North, to take from the supplies that ought to go abroad, and also to place an extra burden upon transportation to move food to the

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South? No patriotic man will deliberately decide to bring about such a result. The South must feed itself as the greatest contribution toward the winning of the war.

The Transportation Problem.

The transportation problem is a most serious one. To transport an army of 1,600,000 requires 124,180 railroad cars. To feed that army one year requires 1,704,320 tons of food, which, at the rate of 20 tons per car, requires 85,216 cars. To feed the horses and mules owned by the army in this country and France now, without any increase, will require 1,545,296 tons of hay and grain at an average of 32,000 pounds per car; this will require 96,624 cars, with the grand total of a little over 300,000 carloads. In addition to this the following items should be considered.

1. The Army is to be increased immediately.
2. Our great shipbuilding program involves the expenditure of $2,000,000,000, and transportation accordingly.
3. Fuel for the Navy and for merchant ships, and for the Army.
4. Ammunition and ordnance for the Army and Navy.
5. Raw materials for munitions factories.
6. Wharves, railroads, camps, warehouses in this country and in France, involving thousands of carloads of material.
7. The expenditure of practically $900,000,000 for aeroplanes and additional sums for armored cars, tanks, etc., with increased transportation involved in this program.

During two months recently 80 per cent of the freight haulage of two of the great railroads leading to an eastern seaport was war freight alone.

In view of this situation particularly, and the call of the Director General of the Railroads, the food problem is of supreme importance in the South. Last month we outlined the program and the present situation has in nowise changed it.

Food and Cotton.

The price of cotton should be no inducement to farmers to neglect or decrease the production of food. On the contrary, the price of food should especially influence farmers to safeguard food and feed first, as pointed out last month. The banks in the South are full of money, it is true, but that money is going out pretty fast during the spring for products which could be produced in the South, and by that very fact is drawing very heavily upon the food stores of the Nation. A bale of cotton at $150 will not buy any more at the present time in terms of corn, hay, meat, meal, flour, and other general food products than it would have bought when it was worth but $60 a bale. The farmer who decides to grow nothing but cotton and buy his food will find himself not richer but poorer.

Safeguarding the Food Supply.

The department is not discouraging the production of cotton. When the living has been amply provided for and we have enough to assure food for ourselves and feed for our live stock, the southern farmer should grow as much cotton as can be well tended with his supply of labor, teams, and tools, but he should safeguard the food supply through a good home garden, enough acreage in corn to supply the family and the live stock, and some to spare, hay and other roughage ample for his needs, peanuts, soy beans, velvet beans, cowpeas, and other food and feed crops, which, together with sweet and Irish potatoes for the family use and cane or sorghum for sirup, should be made to go as far as possible in supplying local food needs and prevent the necessity of heavy transportation burdens in bringing food in.

Where Labor Is Scarce.

When labor is scarce, another thought should influence farmers in balancing the cotton acreage with a liberal supply of food acreage. A careful examination of a large number of records in Alabama shows that the farmers in the south end of the State, with the highest degree of diversification and the least proportion of cotton acreage, produce the largest crop value per plow, practically doubling the amount produced per plow in the north end of the State, where the proportion of cotton acreage was the highest.

In West Texas and Oklahoma.

In all this program where we have used corn and hay, this means adapted crops in west Texas and Oklahoma, the grain sorghums for grain, and for hay sorghums, sudan grass, etc. Last year the peanut crop produced well under drought conditions in the Southwest. It should receive careful attention again this year.

County agents have been furnished with a plan for farmers to volunteer to produce ample supplies of food and feed and to receive recognition cards where they undertake this important public service.

In the location of the poultry house, if it is impracticable to select a soil that is naturally dry, it should be made dry by thorough underdrainage.

The tools and facilities required for keeping harness in repair are comparatively simple and inexpensive. A considerable portion of the repair work on harness can be performed by the aid of tools required for other purposes, but there are a few special devices that are desirable.

DRYING PLANTS.

Community Establishment Provides Simple and Convenient Method of Saving Perishables.

Establishment by municipalities from municipal funds of drying plants for fruits and vegetables where conditions are favorable is referred to in Farmers' Bulletin 916, A Successful Community Drying Plant, published by the United States Department of Agriculture.

In municipal plants, the bulletin says, the work should be supervised by the city council or other town authorities. If the plant is not a municipal plant, it is best to place it under the guidance of some association already in existence, such as a civic improvement club, commercial club, home-school garden club, or a special community club organized for the purpose.

As an example of a club that can be formed for the purpose, the bulletin tells of one community that has a drying plant and in which a special community club of approximately 60 farmers has been organized primarily to look after the operation of the drying plant. The officers—president, vice president, secretary, and treasurer—constitute the executive committee and are intrusted with power to act. A simple form of constitution and by-laws has been adopted, and meetings of the club are held monthly or oftener, usually at the drying plant, which in this instance is in a room of a church building.

Advantages of Community Plant.

Municipal or Government owned drying plants have been in successful operation in European countries for years. Such plants provide village communities with a convenient and simple method of drying all sorts of produce of the home garden and orchard, as well as the vegetables and fruits shipped to the community, which might be allowed to go to waste at the stores and market places. The drying plant described in the bulletin follows closely the specifications of a community plant at Lincoln, Nebr., and 11 others in that general section, all of which were operated successfully during the summer and fall of 1917.

The advantage to the busy farmer's wife in the country community can not be overestimated, says the bulletin. Her work is heaviest in the summer when vegetables and fruits must be saved for winter use. The establishment of a community drying plant at a consolidated school, country church, or centrally located farm home would offer a great relief from heavy kitchen duties.

Fan Method of Drying Favored.

The drying plant described in the bulletin uses an adaptation of the electric fan

process of drying. A stream of dry air is caused to flow continuously over the products being dried. The humidity of the air, the method of preparation of the vegetables, and the velocity of the air current have much to do with the rapidity of drying. It is a utilization of the same principle by which wind will dry roads after a rain or by which damp clothes hung in a breeze will dry much more quickly than those hung in quiet air. Another feature of the drying plant described is that instead of the air being forced across the vegetables it is drawn across them. Laboratory tests indicate that drying is considerably accelerated when the suction method is used, although the force method will dry satisfactorily and is used in at least one Nebraska plant. The bulletin says that such a plant should be operated without expert help and by power easily available and can be built complete for $250 or less. Plans and specifications for building such a plant are given in the bulletin.

Fan is Most Important.

The most important feature to watch in the construction of a drying plant of this type is the fan. The main point to keep in mind is to get one that will move a sufficient quantity of air. If the fan will move air fast enough for the suction to hold a piece of cardboard or other material 1 foot square and weighing 8 ounces against the wire screen at the intake end, the drying will proceed satisfactorily. Any type of fan can be used, and among those that have been found efficient are an old ensilage cutter blower fan, a separator fan used on a blower threshing machine, and a fan which had been discarded as a planing mill after use there in drawing sawdust and shavings from the planing machines. The fan may be operated by an electric motor of from 2 to 5 horsepower, or by a gasoline engine of similar power.

Best to Have Heating Equipment.

Nebraska's experience with community drying indicates that ordinarily a better colored and better flavored product is obtained if no artificial heat is applied. Even in arid countries, however, and always in humid countries, it is best to have equipment for heating. This will be needed when the air contains much moisture. An effective method of heating the air is by the use of a hot-water radiator at the intake end of the drier.

How to Prepare Fruits and Vegetables.

Fruits and vegetables meant for the drier should be prepared by cleaning as for table use. After cleaning they should be sliced thin. The slicing process may be hastened by use of a slicing machine.

After a sufficient amount of moisture apparently has been removed, it is well to keep the product for several days in a large container which can be protected by either a cloth cover or a wire screen. After a few days, if there are no indications of moisture collecting on the dried product, it should be placed in pans in the oven or exposed to the sun or air currents for a few hours and then packed in permanent containers. The enemies of dried fruits and vegetables are moisture, insects, and rodents, and successful storing will depend on protection against them.

PLANT RIGHT VETCH SEED.

How to Distinguish Varieties and Common Seed Adulterants.

Success in the growing of vetches rests fundamentally on the use of proper seed, says Farmers' Bulletin 515, which contains a chapter on "Vetch Seed and Its Adulterants," published by the United States Department of Agriculture. Common vetch can be successfully grown only where the winters are mild, while hairy vetch can withstand the winters even in the Northern States and will not grow successfully when sown in the spring in regions where the summers are very hot. While actual misbranding is infrequent, the bulletin says, adulteration by the use of large quantities of seed of other vetches and similar plants has become a common practice. Seed of common vetch average considerably larger than those of hairy vetch. They are slightly flattened, which prevents them from rolling readily. The surface is more or less distinctly mottled, the color of the seed ranging from light brown to green. In old seed the general color is dark.

Seeds of hairy vetch are small and nearly spherical, the usual color ranging from gray to leaded black. New seed may be somewhat brown or green. A conclusive distinction between the two kinds is seen in the seed scars with the aid of a magnifier. The scars of common vetch are narrowly wedge-shaped and have a slight ridge, while the scar in the hairy vetch is broad and oval in shape and is often split along the center. When one is familiar with the appearance of vetch seed and can recognize it by means of the scar as seen under a magnifier, the detection of other seeds used in adulteration is not difficult.

To make life on American farms worth living to free men, the things Germanism stands for must be defeated. The proceeds of the Liberty Loan are used to that end. The purchase of a Liberty Bond is a blow at German domination.

BUY LIBERTY BONDS.

MARKETING.

(Continued from page 1.)

bottom layer. This rack is constructed of three 2 by 4 inch stringers, lengthwise of the car, at the sides and through the center, supported by posts, a little higher than the bottom layer. The bottom and top layers are then loaded simultaneously, and boards to support the top layer are nailed across the stringers as the sacks are put in place. This has the advantage of allowing sufficient space for ventilation and preventing crushing of the potatoes in the bottom of the load by the weight of the sacks above.

Potatoes in Storage.

Serious losses in potatoes now held in common storage can be largely reduced if growers and shippers take necessary precautions in the management of their storage houses. All ventilators and doors should be kept closed during the daytime and storage rooms ventilated at night, when the minimum outdoor temperature prevails. Allowing the doors to remain open during the day while grading or loading potatoes may result in gradually raising storage temperatures, permitting the rapid development of decay, and greatly increasing the losses from shrinkage. To maintain suitable temperature and humidity conditions in potato storage houses during the remainder of the present season requires the closest attention of growers and shippers in the management of their houses. The transfer of common storage stocks into cold storage in order to avoid excessive losses due to unfavorable storage conditions is a practical means of reducing storage losses, where such a practice is feasible.

W. W. MEIN TO ASSIST SECRETARY.

Secretary Houston has appointed William Wallace Mein, of New York City, to act as his immediate representative in the discharge of the duties imposed upon the Secretary of Agriculture by the President's proclamation of February 25 regarding the licensing of the fertilizer industry. Mr. Mein has been designated assistant to the Secretary.

Keeping a machine or vehicle in good repair and well oiled not only increases its efficiency but lessens the power required in using it.

GARDEN IRRIGATION.

Simple Directions for the Home Gardener—Garden Plan Must Fit Irrigation Scheme.

These directions on the irrigation of the home garden are intended for the people who have had little or not any experience in irrigation.

The irrigation plan must be made first, and the garden plan must fit the irrigation scheme; that is, the rows must run in the direction the water flows.

Level Rough Ground.

If the ground is rough, level it enough to let the water flow in furrows to all portions of the garden. Make the slope from one side or end to the opposite side or end if possible. A gentle slope of 2 inches in 100 feet is best, but a very much steeper grade may be successfully handled by blocking up the furrows at intervals with earth or short pieces of boards until the ground is soaked. On rather steep slopes mark out the furrows with a fall of 2 inches in 100 feet no matter how winding the shape of the ground surface may make them. Let the garden rows follow the winding of the furrows. If there is a slight ridge through the garden which will not be cut down in leveling, and if water can be run in a main furrow along the top, then grade both slopes for branch furrows from this main one so as to distribute the water over the entire garden.

To level the ground, use a team and scraper and leveler if the garden is large enough; if it is very small, use hand tools.

If the ground to be leveled is too dry and hard to be handled, soak it well with water either by flooding, by cross furrows, or otherwise, and when dry enough to work well, do the leveling. Then run irrigating furrows about 3 feet apart and give the ground a good watering. In a day or two, when the furrows have dried out somewhat, cultivate at least the furrows if not the entire surface, to keep in the moisture. Then lay off the rows and plant the seeds.

Have either single rows 18 to 24 inches apart, or double rows 12 inches apart with 18-inch spaces between the double rows, for hand cultivation. Have the rows 36 inches apart for horse cultivation. Water the plants in the single row through a furrow on one or both sides of the row and the plants in the double rows by one furrow in the middle of each 18-inch strip.

Give the Ground a Good Soaking.

Have the irrigation furrows all made before irrigation begins. Turn water into as many of them as the stream will handle and let it trickle through to the end of the rows. Then block these rows with earth or pieces of boards at the supply ditch and open up another set for watering. Follow this plan until the rows have all had their first watering, then go over them all again, and if necessary again, until the ground is soaked.

Give the ground a good soaking about once a month as the water is available. Cultivate the furrows as soon as they are dry enough; this is important to hold the water in the ground. Also cultivate or hoe the ground frequently to keep a dust-mulch cover and prevent loss of water by evaporation.

Local regulations govern the time of irrigation and the amount of water which may be used. In many cases the monthly domestic allowance will water a small garden. In some instances the waste from a neighbor's garden, or from distant irrigating, may be turned into one's own garden. In some cities water is especially provided for garden and lawn purposes.

Do not give a light watering often, *but do give a good soaking* when the plants need it. An occasional soaking and frequent cultivation make the best irrigation treatment a garden can be given.

FEEDING YOUNG CHICKS.

Rations to Make Young Birds Thrive—When to Feed.

Young chicks may be fed any time after they are 36 to 48 hours old, whether they are with a hen or in a brooder. Some good feeds for the first feeding are moistened hard-boiled eggs, johnnycake, stale bread, and oatmeal or rolled oats, which may be fed separately or in combination. Mashes mixed with milk are of considerable value in giving the chicks a good start. The mixture should be fed in a crumbly mash and not in a sloppy condition. Johnnycake composed of the following ingredients in the proportion named is a very good feed for young chicks. One dozen infertile eggs or 1 pound of sifted beef scraps to 10 pounds of corn meal; add enough milk to make a pasty mash and 1 tablespoonful of baking soda and bake until done. Dry bread crumbs may be mixed with hard-boiled eggs, making about one-fourth of the mixture eggs, or rolled oats may be used in place of bread crumbs.

How Often to Feed.

It is a good plan to give these feeds about five times daily for the first week, then gradually substitute for one or two of these feeds a mixture of finely cracked grains of equal parts by weight of cracked wheat and finely cracked corn and pinhead oatmeal or hulled oats, to which about 5 per cent of cracked peas or broken rice and 2 per cent of charcoal or millet or rapeseed may be added. A commercial chick feed may be substituted if desired. This ration may be fed until the chicks are 2 weeks old, when they should be placed on grain and a dry or wet mash mixture.

Young chicks should be fed from three to five times daily; but if care is given not to overfeed, chicks will grow faster when fed five times per day. Young chicks should be fed not more than barely enough to satisfy their appetites and to keep them exercising, except at the evening or last meal, when they should be given all they will eat. There is danger in overfeeding, particularly if the young chicks are confined and do not have access to free range, as too much feed under such conditions is apt to cause leg weakness.

DOG-PROOF FENCE DESIGNED.

Forest Service Tells Method of Preventing Losses of Sheep.

A fence constructed in such a way as to be proof against dogs and coyotes has been designed and tried out by the Forest Service of the United States Department of Agriculture. A diagram showing the construction of such a fence is given in Farmers' Bulletin 935, "The Sheep-Killing Dog."

Specifications for the dog-proof fence follow:

Posts 7½ feet in length, set 2½ feet in the ground and 16 feet apart; a barbed wire stretched flat to the surface of the ground; 3 inches higher a 36-inch woven-wire fence having a 4-inch triangular mesh; 5 inches higher a barbed wire; 6 inches higher a second barbed wire; 7 inches above this a third barbed wire. Total height, 57 inches.

It is essential that the bottom barbed wire be stretched flat on the surface of the ground at all points. This is accomplished by grading the ground before the fence is built and by filling in the small holes afterwards.

ALL EMBARGOES LIFTED ON SEED.

Field and garden seed will be unconditionally exempted from all embargoes, according to an announcement from the United States Department of Agriculture, following a conference between Edward Chambers, director of traffic for the United States Railroad Administration; Clarence Ousley, Assistant Secretary of Agriculture; and other members of the Department of Agriculture.

Instructions will be issued to all railroads in the United States by the director of traffic to do everything possible to expedite the movement of field and garden seed.

MILK GOATS.

Interest is Growing in the Possibilities of Milk-Producing Breeds in this Country.

In this country the goat is usually regarded simply as a plaything for the children, but in some parts of Europe it is regarded as the poor man's cow. A well-known American importer of live stock states that "the goat of Switzerland is the Swiss peasant's cow, the Swiss baby's foster mother, a blessing to the sanitariums for invalids, and a godsend to the poor." In England and in many other parts of Europe people who leave the city during the summer months, either for their country homes or for travel, often take a milk goat with them in order to insure a supply of good milk of uniform quality. In this country the fact that the goat will supply sufficient milk for the average family at low cost and can be kept where it is impossible to keep a cow, is beginning to appeal to many people, especially those in the small towns and in suburbs of cities. In this way the milk goat can be made to relieve the milk shortage which is now felt in many localities.

Adapted to this Country.

In Farmers' Bulletin 920, "Milk Goats," recently published by the United States Department of Agriculture, specialists say that the milk goat is adapted to this country and that the industry is likely to become of greater importance every year. The goat is especially useful to those who desire a small quantity of milk and do not have room for and can not afford to keep a cow. In fact, a goat can be kept where it is impossible to keep a cow, and will consume considerable feed that otherwise would be wasted. The fact that goats are rarely affected with tuberculosis is another point in their favor.

A doe that produces 3 pints a day is considered only a fair milker, while the production of 2 quarts is good, and the production of 3 quarts is considered as excellent. Goat's milk is nearly always pure white. The small size of the fat globules is one of its chief characteristics. In consequence the cream rises very slowly and never so thoroughly as in the case of cow's milk. If it is properly produced and handled, it will keep sweet as long as cow's milk, and there should not be any goaty odor. The milk can be utilized for the same purposes as cow's milk, but is less satisfactory for making butter and perhaps better for making cheese. Practically all publications dealing with milk goats attribute considerable importance to the use of the milk for infants and invalids.

During the last few years a number of goat dairies have been in operation in different parts of this country. If only a few goats are kept, it is not necessary to have much equipment, if any. Any clean, dry quarters free from drafts may be used for housing goats. The building should have proper ventilation, plenty of light, and arrangements made so that each goat can be properly fed and handled.

Feed for Goats.

Goats should receive a liberal quantity of succulent feed such as silage, mangelwurzels, carrots, rutabagas, parsnips, or turnips. The grain feeds best suited for their rations are corn, oats, bran, barley, and linseed-oil meal or oil cake. A ration that has been used in the Government herd, and which has proved to be very satisfactory for milk goats during the winter season, consists of 2 pounds of alfalfa or clover hay, 1½ pounds of silage or turnips, and from 1 to 2 pounds of grain. The grain ration consisted of a mixture of 100 pounds corn, 100 pounds oats, 50 pounds bran, and 10 pounds linseed-oil meal. All feed offered the goats should be clean and of good quality. Plenty of rock salt should be kept before them, and occasionally a small quantity of fine salt mixed with the grain feed. A good supply of fresh water is necessary.

A PRIVILEGE TO PATRIOTS.

April 6, 1918.

THIS day is a peculiarly fitting time for the opening of the Third Liberty Loan campaign. The first anniversary of the entrance of the United States into the world conflict finds the people of the Nation united in the great struggle against Prussian domination and determined to prosecute it to a victorious conclusion. The Nation's task is a serious one. It intimately touches each of us. It faces you and me. If we do not win this war we must prepare ourselves for grave changes in our institutions and to lead a different sort of life from that which we had planned to live—from that which our forefathers died to give us the right to live. We shall indefinitely face the interference of the Prussian autocracy or bear permanently the intolerable burdens of militarism. To win this war we must have both men and money. It is every citizen's duty, therefore, to purchase a Liberty Bond if he is in position to do so. Every patriot will regard it as a privilege to participate in the Liberty Loan. He will thereby contribute directly and effectively to the successful prosecution of the war which Germany has forced upon us.

We are at war with Germany because Germany made war upon us, sank our ships, killed our citizens, and plotted against us while professing friendship. We were patient till offenses became so flagrant and insults so intolerable that it was merely a question whether we would admit that we were no longer a free nation or accept the challenge of the war-mad, hypocritical, and medieval Prussian militarists. There was one choice we could not make—we were incapable of making. We could not "choose the path of submission and suffer the most sacred rights of our Nation and our people to be ignored and violated."

We are defending our rights as a free Nation. We are resolved that there shall be an end of brute force in international affairs. What Germany's victory would mean to the world is plain. There would be no right except might, no peace save at the price of humiliations too bitter to be borne. Small nations could not exist. There would be no sanctity to a pledge; no solemnity to a covenant. With the dominance of Prussian militarism, the Anglo-Saxon struggle for free institutions and liberty, persisting from Runnymede to Yorktown, with its Magna Charta, its Bill of Rights, and its Declaration of Independence, will have been in vain. It is to prevent this, to defend our rights, and to make possible an orderly and just peace in the world that we are at war. The Nation calls on its citizens for high and noble service. On some it calls for service in the field; on others for service at home; on all, it calls for financial support.

D. F. Houston

PREACHERS TO HELP.

Every minister, priest, and rabbi in the United States is to be asked to join in the campaign that aims to insure this year record-breaking crops of every farm product.

The United States Department of Agriculture, through the States Relations Service and by cooperation with the Federal Council of Churches, is sending a special letter to all preachers in the South asking their assistance in the food-production campaign. The preachers are being asked to get in touch with county agents and with the State extension service, which represents the State agricultural college and the United States Department of Agriculture, and to devote as much time as possible to enlightening their people regarding the necessity of local food production. They are being furnished with data regarding the great burdens upon the transportation system of the country, and, in sections where the food production is insufficient for local needs, a special message is being sent to urge increased production to meet local demands.

This message is being sent first to 45,000 ministers in the South, but will reach those in the North and West before the planting season.

The principal facts in regard to the raising of rabbits are as well established as those of rearing other domestic animals, and the directions which a beginner needs are few.

WOMEN AS FARM HELP.

How They May Assist in Solving the Farm-Labor Problem—Many Ways to Render Service.

While women can do much in the solution of the complex and rather pressing farm-labor problem, it should be understood that the man power of the country is not yet exhausted and that, except for certain lighter tasks, men are better adapted than women for farm labor.

On account of the demands for labor in necessary industries, and because for many years past the cities with their attractions of high wages and amusements have drawn many men from the farms, there is not now enough labor seeking employment to supply the demand of the farms for extra help, especially during the periods of seasonal strain for cultivating and harvesting.

While much is being done by the Departments of Agriculture and of Labor to mobilize man power for farming operations, much yet remains to be done if we are to make sure the saving of the crops which are now being planted.

Local Communities Must Assume Responsibility.

The primary responsibility must be assumed by the regions and communities most vitally affected, because no agency of government can create labor or compel men to pursue any particular vocation. In all towns and cities adjacent to agricultural regions there are many men of farm experience who can be spared for a day at a time or a week at a time, as the case may be, to help the farmers with their most pressing tasks. In many such towns and cities last year men were spared from ordinary business and industry, from offices and shops, and crops were cultivated and harvested which otherwise might have suffered serious loss. Such adjustments must be made this year and undoubtedly will be made when the communities affected come into a full realization of the necessities of the case.

In releasing the men of farm experience in the cities for farm labor, many women can be utilized to take their places for a few days at a time or for a whole season. Generally speaking, it will become more and more necessary for women to take the places of men in all occupations.

How Women Can Help.

In addition to relieving men in towns and cities, women can actually perform many farm tasks such as dairying, vegetable cultivation, fruit gathering, etc. The precise method of utilizing women for farm labor can not be prescribed in any uniform plan, but it will depend upon conditions in the community and upon the farms. Of course, steps must be taken to see that women laborers are properly housed and otherwise are safeguarded from unnecessary hardships. Women who are not physically able to perform farm labor may be of great service to farmers by ascertaining their needs for labor and endeavoring to supply such needs. Organized groups of women eager to render public service might well undertake by personal visitation to make surveys of the farm-labor situation in their neighborhoods. More helpful even than that in many places would be for some of the women of the towns and cities to take the places of their country sisters during the periods of labor stress and actually do the housework in order that the women of the farms may help their husbands. Some of the finest of our American women are cooking and washing dishes in the hospitals of France. The women of France are between the plow handles. No good woman would hesitate to keep house for her sick friend for a week. It would be beautiful service if city women would keep house for country women for a little while. Of course, this is not as attractive or as romantic as binding up the wounds of soldiers, but it is one of the things that must be done if the soldiers are to be fed.

It does not seem to be possible to work out any uniform plan of mobilizing farm labor or of directing the employment of women on farms. The important thing is to get the problem fairly before the American people and specially before the community groups. When a group of Americans, whether of men or women, understand a problem or realize a necessity, they may be depended upon to solve the problem and to meet the necessity in the best possible way.

NORTH AND WEST.

(Continued from page 1.)

to prune each season as soon as it is possible to determine to what extent, if any, the fruit buds have been damaged by freezing.

The annual pruning of peach trees should be done, but the extent of the pruning will be determined by the growth made by the trees the previous year and the extent to which the buds have been injured by cold during the winter.

The trees should be pruned as severely as is necessary to induce the development of new wood for next year's fruiting. If 50 per cent of the fruit buds have been killed, the pruning should be much less severe than would be the case had no fruit buds been destroyed, as pruning is one of the means of thinning the crop on the trees. The pruning therefore is little or much in proportion to the percentage of fruit buds destroyed. Little wood should be cut away if 50 per cent or more of the fruit buds are destroyed and one-half of the previous season's growth cut away if no injury has been suffered by the fruit buds.

All dead wood should be cut out of raspberry and blackberry bushes.

Grape vines should be pruned. No fear need be felt if the vines bleed profusely, as no injury will be done.

Grow Balanced Roughage Rations.

With the present high price of grains it is hardly necessary to call attention to the need for growing more nearly balanced roughage rations, by planting Canada peas in oats and soy beans in corn for silage, or by planting the crops separately for hay or seed. If soy beans are planted for hay, the fine-stemmed varieties are preferable. At present it is profitable to grow the crops for seed, and even if the price of seed should go down, they will pay as a substitute for cottonseed meal in the ration for dairy cattle, as the protein contents of these crops is even higher than that of cotton seed. If soy beans are used for feed they should be mixed before grinding with some less oily grain, as corn or oats, or with hominy or bran.

Spraying.

Fruit trees should be sprayed early in April, before the buds begin to swell, to control scale insects, kill certain fungous spores, and prevent leaf-curl on peach trees. A diluted lime-sulphur solution, composed of 1 gallon of concentrated lime-sulphur solution to 7 or 8 gallons of water, should be used. In sections where there is pear psylla, special attention should be given to destroying the hibernating insects by scraping off the rough bark of the trunk and limbs of the trees and spraying thoroughly before the adults emerge from hibernating.

Dairying.

Nothing is gained by turning dairy cows into stalk fields or on to pasture during the early spring months. Protection from storms and good feeding are of the utmost importance if the cows are to be kept from losing flesh or from falling off in milk. Much damage will be done also to pastures if they are tramped and cut up while they are wet and before the grasses have gotten well started.

A small patch of sorghum should be planted in a rich spot near the barn or pasture as a safeguard against a shortage of pasture in the early summer, in case of drought. Plan to plant a large enough acreage of corn or sorghum to fill a silo. If planted early, the silo can be filled early, in readiness for use during the early fall, when the pasture may be short.

Now that the warm days are coming, every farm should arrange so that milk can be cooled as soon as drawn from the cow, unless the cream is to be separated at once with a separator. Cream, as soon as separated or skimmed, should be cooled and kept cool until churned. Where a sepa-

rator is not employed quick cooling of the milk insures more rapid and more complete rising of the cream. Cream kept properly cooled remains sweet and produces a better grade of butter.

Poultry.

Chicken houses should be thoroughly cleaned and sprayed, and an effort made to get rid of all mites and lice. These pests affect the vitality of the flock, cause hens to leave their nest, and kill young chicks. Breeding stock should be carefully selected and well housed and fed to insure good hatches and strong chicks. Ample nests should be provided for the layers. Chicks should be protected from getting wet or becoming chilled. Guard against rats.

Eggs should be gathered regularly, whether for hatching or for sale. Only clean eggs should be marketed. Dirty eggs and eggs left under a sitting hen for a day or longer if sold to local dealers lower the price to the farmers, and thus may cost them thousands of dollars a month.

Protect Young Animals.

A clean, warm, dry, sunny place should be ready for the pigs, lambs, calves, and other young animals when they arrive. A good start in life tends to make healthy rapid-growing animals. Let the boy or girl show you what can be done with the orphans or weakly pigs, lambs, or calves that you do not think worth saving because of the rush of other work.

RAISE WEEVIL-PROOF CORN.

Farmers in the South Should Select Seed Ears that Have Long Tight Shucks.

Corn growers of the South are urged by the United States Department of Agriculture to select seed ears this spring that have long, tight shucks. It has been found that such husks are effective in reducing insect injury by barring the weevil and other insects from the corn. While the growing of corn is increasing rapidly in the South, a region wonderfully adapted to the production of this food crop, the prevalence of insects is an obstacle which stands in the way of most profitable returns. Just now when it is essential that all possible waste be prevented and that food production be increased as much as possible it is important that this measure be taken to reduce insect damage.

Long, Tight Husks Resist Weevils.

The fact that the corn crop is usually stored in husks in Southern States makes it possible to consider the husks as well as the ear in the selection of seed this spring. Experiments have shown that husk coverings extending well beyond the tips of the ears and closing tightly about the silks will resist weevils successfully. The average results from 14 representative southern varieties show about 40 per cent of the ears to be weevil proof in this way. It has been found that in weevil-infested sections the ears with tips protruding from the husks or with loose, open husks easily become infested and are often seriously damaged before they can be safely stored, and that many of them after several months in storage are worthless.

Opportunity for Corn Breeder.

Here is a rare opportunity for the corn breeder. While striving to produce perfect seed ears he should also keep in mind the protection from weevil injury that is given by long, tight husks. The best plan is to select the seed ears in the fall from the standing corn, but in the spring the ears should be looked over carefully to see that the husks have been sufficiently tight to prevent weevil attack.

Husk protection involves no additional cost, as is the case when fumigation methods are used to combat the weevil, and it is effective to the extent of its development. Grow the best husk-protected corn, store the weevil-proof ears in their husks, and shell and clean and feed or sell the unprotected ears as early as possible after the harvest season.

COTTONSEED MEAL FOR FARMERS.

The Food Administration announces that at no time has it made any rules or regulations which in any way restrict the use of cottonseed meal for fertilizer. This impression seems to have gained ground from some unknown source. The Food Administration states, on the contrary, its attitude has been that the crushing mills must give to the farmers of the South a preference in the sale of their cottonseed meal over the commercial mixers. The farmers may in this way purchase their raw materials and mix their own fertilizers, thereby saving in their investment from 20 per cent to 25 per cent of the cost of commercial fertilizer.

Economy in the purchase of farm implements is not necessarily based on low first cost, for good equipment properly cared for will last and give better service for many years.

In considering the breed of chickens best suited for the home flock, pay little or no attention to those which are not of local importance, that is, not being raised successfully in the community, except on the advice of experts.

COMMITTEE ORGANIZES.

Advisory Body of Citizens Representing Food Producers Meets in Washington.

The advisory committee of 24 citizens representing agricultural and live-stock interests in various sections of the United States, recently appointed by the Secretary of Agriculture and the Food Administrator, organized in Washington March 28. Ex-Gov. Henry G. Stuart, of Virginia, had previously been requested by Secretary Houston and Mr. Hoover to act as chairman. This committee is an advisory and not an executive body.

The committee immediately began a series of conferences with Secretary Houston, Food Administrator Hoover, and representatives of the various branches of these two agencies. The members, after leaving Washington, will be expected to keep the two departments in touch with local conditions and will reassemble on call.

The committee, it is expected, can render important service to the Government, especially in two ways: First, coming, as they do, fresh from the various sections of the Union, they can assist the governmental agencies in keeping more intimately in touch with production and food problems throughout the Nation and can make suggestions as to modifications or extensions of existing activities; and, second, can ascertain definitely and make clear to the persons interested in their respective districts the nature and scope of the policies of these two governmental agencies and the reasons underlying the various actions deemed necessary. There is need, it is believed, for more complete information and understanding in both these directions. It is not always easy in Washington to estimate the real difficulties and the extent to which those who present matters fully represent the actual situation and the sentiment of the people. It is also true that it is very difficult to make clear to great numbers of people the actual nature and scope of measures devised by the Government. Much misunderstanding exists in many quarters, some of it based on representations growing out of ignorance and some on representations mischievously made.

Secretary Houston Outlines Purposes.

Secretary Houston, in outlining the purposes of the advisory group, said, in part:

"It seemed advisable to select a representative group of producers who could come to Washington from time to time and furnish advice. This group should be composed of men in touch with the various communities and with producers in various sections of the Union who can present, in

responsible and helpful ways, the existing difficulties. It was thought that they might present many suggestions which it would be difficult otherwise to receive. The committee is to be an advisory and not an executive body. It can render much assistance in ascertaining clearly and definitely the purposes and activities of the Government and in clearing up confusions that exist in many parts of the country. It is difficult enough to run a Government like ours if all the facts are adequately presented to the people and properly interpreted. It is extremely difficult to run the Government satisfactorily if the people get not facts, but gossip—and they are getting a great deal of gossip. In the field of production I am especially anxious to have you clearly understand what the department is doing to aid in dealing with the seed and farm-labor situations and to have from you any advice as to what further things we can do to meet any difficulties in these two directions. The executive machinery of the department is available for securing and supplying requisite information, and I shall be glad to have those in charge of the activities fully present matters to you."

Mr. Hoover Tells of Work to Be Done.

Food Administrator Hoover, after discussing problems relating to the Food Administration's functions regarding price fixing and control and distribution of products, said, in part:

"All war is an economic degeneration, and in getting down first from one stage of degeneration to another it is our business in our particular line to adjust the movement downward as softly as we can. We are not trying to correct industry or otherwise to lay any permanent foundations, but merely to serve the exigencies of the situation. The incidents of war on the food industries as a whole are probably more disturbing than on any other type of industry. There are the enormous demands for increased foods and the dislocation of shipping, and a thousand and one things that have happened and for which we must find some immediate solution—something that will do for the moment. Therefore, our aspect and our dealings are nine times out of ten the choice of the lesser of evils, and that conception of the work is the thing that is so little understood generally throughout the country.

"We need above all things a body of sane and stable men who will consider the choices that are forced upon the Government in various lines of activities and advise us practically which is the best and then to give reassurance to the country that the best choice has been made, and to explain the reason why these things have been done. There is such a mass of misinformation that we find it utterly impossible to follow it. We are anxious to secure a background of stable men who, when they have agreed with us on a line of policy, will stand to it and assist us in securing the confidence that it is probably the only, or at least the most advisable, thing to do."

The members of the committee are as follows:

HENRY C. STUART, *Elk Garden, Va., Chairman.*
Henry C. Stuart is one of the leading farmers of Virginia; operates a tenant system and 35,000 acres of land. He is a cattle breeder and feeder and interested especially in the development of the live-stock industry on southern cut-over lands of the coastal plains region. Mr. Stuart has served as governor of Virginia.

C. S. BARRETT, *Union City, Ga.*
C. S. Barrett for several years has been president of the National Farmers Union, one of the largest farmers' organizations in the United States. He is an experienced and successful farmer and has long been identified in his State and in the South with agricultural progress.

ELBERT S. BRIGHAM, *St. Albans, Vt.*
Elbert S. Brigham has specialized in dairying and has developed an excellent dairy herd. He is also an extensive bean and potato grower, developing a special market for seed potatoes. For a number of years he has served as institute worker in Vermont, and during the past four or five years Mr. Brigham has been commissioner of agriculture for the State.

W. L. BROWN, *Kingman, Kans.*
W. L. Brown is a wheat grower. He went to Kansas in 1876, proved a claim, taught school, and farmed. He has served for three sessions as a member of the State legislature. He was the first man in his State to enlist in the Spanish War, and raised a regiment and was commissioned as major. Mr. Brown is a member of the State board of agriculture and is on the executive committee of the State Cattlemen's Association. He has had a wide experience in breeding of pure-bred cattle and hogs, and his farming experience has also included the raising and production of many kinds of grains and fruit.

MILO D. CAMPBELL, *Coldwater, Mich.*
Milo D. Campbell is a native of Michigan, born in 1851. His chief vocation is farming and his specialty dairying. He is now president of the National Milk Producers' Federation. He has held other public offices and taught school.

DAVID R. COKER, *Hartsville, S. C.*
David R. Coker is one of the most successful farmers in South Carolina and is especially interested in cotton growing. The long staple cotton developed by Mr. Coker now displaces 75 to 90 per cent of the short staple cotton formerly marketed in his county. He operates one of the most extensive seed and experimental farms in the South. He is president of a pedigreed seed company and operates a plant-breeding, live-stock, and seed business. Mr. Coker is president of the South Carolina Plant Breeders' Association. He is chairman of the South Carolina Council of National Defense, and director of the Richmond Reserve Bank.

W. R. DODSON, *Baton Rouge, La.*
W. R. Dodson lives on his large farm near Baton Rouge, La. He is thoroughly informed regarding the cotton, sugar, rice, truck, and live-stock farming of the lower Mississippi Valley. He received his university training at the Universities of Missouri, Michigan, and Harvard. For many years he has been director of the Louisiana Agricultural Experiment Station and dean of the College of Agriculture of Louisiana State University. He is a member of the State council of national defense.

EUGENE FUNK, *Bloomington, Ill.*
Eugene Funk is one of the foremost producers of seeds in the United States. During the last several years he has conducted a seed business at Bloomington, distributing numerous varieties of seeds but specializing in seed corn. He operates a large farm and during the last two years has cultivated approximately 20,000 acres of grain and corn. He also is a feeder of cattle and hogs. He is ex-president of the National Grain Association, charter member and president of the National Corn Association, and a member of the Illinois Seed Corn Growers' Association. He represented the producing interests in the preparation of rules and regulations for the enforcement of the United States grain standards act.

N. H. GENTRY, *Sedalia, Mo.*
N. H. Gentry, farmer and hog breeder, has done a great deal to improve the Berkshire breed of hogs. His herds have often taken the blue ribbons at the International Live Stock Exposition and at State fairs. He has represented the agricultural interests, and especially the swine industry, on many occasions.

WESLEY G. GORDON, *Humboldt, Tenn.*
Wesley G. Gordon is a successful farmer in Gibson County, Tenn. He has demonstrated improved agricultural methods on his own farm, and with other leading farmers he has exerted an influence for the improvement of the agriculture of his county, especially in introducing crimson clover and other legumes. He is interested in live stock and general farming in his region.

JOHN GRATTAN, *Broomfield, Colo.*
John Grattan has been farming for the past 10 years near Broomfield, Colo. He is a cattle feeder and grain and alfalfa grower. Mr. Grattan is a member of the Grange, the Farmers' Union, and a member of the board of directors of the American National Live Stock Association and of the Farmers' Congress. Mr. Grattan was in the banking business near Medford, Okla., for four years, and during the last five years has been a member of the board of directors of the Stockyards Bank at Denver, Colo. He has been editor of the live-stock department of Ranch and Range, a western agricultural paper.

J. N. HAGAN, *Deering, N. Dak.*
J. N. Hagan has spent 17 of his 45 years in farming. He grows spring wheat on a large scale. In 1916 he was elected to the office of Commissioner of Agriculture and Labor of North Dakota.

FRANK J. HAGENBARTH, *Spencer, Idaho.*
Frank J. Hagenbarth is heavily interested in sheep and wool growing and in cattle raising. He has encouraged modern methods of range and forest development in the West. Formerly he operated large ranches in Mexico. For many years he has been president of the National Wool Growers' Association.

W. W. HARRAH, *Pendleton, Oreg.*
W. W. Harrah is known as one of the largest wheat growers in the Pacific Northwest. He is a director of the Oregon Seed Stocks Committee and has devoted much energy to increasing the acreage of wheat and distributing seed wheat. He is a director of a large terminal warehouse company of Seattle, a director of the Farmers' Union Grain Agency of Pendleton, and a member of the Farmers' Educational Cooperative Union.

C. W. HUNT, *Logan, Iowa.*
C. W. Hunt and his sons are engaged in general farming, but give special emphasis to swine production and cattle feeding. They produce large corn crops. Mr. Hunt has served in the Iowa State Legislature and in other ways has been honored by his community and State.

H. W. JEFFERS, *Plainsboro, N. J.*
H. W. Jeffers is manager of a large and successful dairy enterprise, including several farms. On one farm between 400 and 500 dairy cows are kept for the production of high-grade market milk. Alfalfa and potatoes are major crops. Recently he was made president of the Walker-Gordon Laboratory Co. He is a member of the New Jersey State Board of Agriculture and interested in a broad way in all agricultural activities.

ISAAC LINCOLN, *Aberdeen, S. Dak.*
Isaac Lincoln is one of the most prominent growers of special varieties of seed grains in South Dakota. On his large stock ranch of 1,760 acres near Aberdeen he personally superintends the growing of choice stocks of wheat, oats, barley, flax, emmer, and corn. He is a strong advocate of better quality grain and seed. Mr. Lincoln went to the Dakotas in the eighties and became the owner of large tracts of farm land. He has given much attention to forwarding the development of the country, particularly about Aberdeen. Mr. Lincoln is president of the State Savings Bank at Aberdeen, and director of the Scandinavian-American National Bank at Minneapolis. As vice president of the State fair he has been instrumental in developing it to its present successful status.

D. O. MAHONEY, *Viroqua, Wis.*
D. O. Mahoney is a farmer specializing in cigar leaf tobacco in Vernon County, Wisconsin. He has devoted much time to the organization of the tobacco growers in his State for the collective selling of their crops. He is a graduate of the University of Wisconsin and has served the public in many ways. For several years he was county judge. He has been president of both the State branch and of the national organization of the American Society of Equity.

DAVID M. MASSIE, *Chillicothe, Ohio.*
David M. Massie is a business man with large farm interests. He gives much attention to practical farm questions and is interested in agricultural problems in relation one to another and from a standpoint of their relation to other lines of business.

WM. F. PRATT, *Batavia, N. Y.*
Wm. F. Pratt is a successful farmer in western New York. He is engaged in general farming and has given considerable attention to feeding lambs. For a long period he has been an agricultural representative on the Board of Trustees of Cornell University. He is a member of the State Farm and Markets Council.

GEORGE C. ROEDING, *Fresno, Cal.*
George C. Roeding is a fruit grower, nurseryman, and irrigation farmer. He has been especially active in the development of raisin, fig, and olive production in California. Mr. Roeding is president of the agriculture society of his State.

MARION SANSOM, *Fort Worth, Tex.*
Marion Sansom has been identified with the live-stock industry in the Southwest for the last 40 years as farmer, feeder, and breeder. Formerly he was a live-stock commission merchant. He is a director of the Federal Reserve Bank, Dallas, Tex.

C. J. TYSON, *Floradale, Pa.*
C. J. Tyson is widely known as a general farmer and fruit grower, specializing in apple production and marketing. For many years he was an active worker in the Adams County Horticultural Society and the State Horticultural Association of Pennsylvania, of which he was secretary for several years and president in 1914.

OLIVER WILSON, *Peoria, Ill.*
Oliver Wilson has been prominent for some time as a farmer and especially as an officer of the National Grange. He was editor in chief of the National Grange Monthly for many years. Prior to 1911, he filled the office of master of the State Grange of Illinois and was lecturer for the National Grange. In November, 1911, he was elected master of the National Grange, which office he has held since.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., APRIL 17, 1918. No. 37

REPORT OF ADVISORY COMMITTEE OF PRODUCERS.

Regulations Adopted Regarding Food Production Measures—Problems Relating to Seed, Grain, Fertilizers, Equipment, Labor, Live Stock, etc., Discussed.

WASHINGTON, D. C., *April 6, 1918.*

Following is the text of the report and recommendations of the advisory committee of agricultural and live-stock producers, consisting of 23 members from all parts of the United States, who were in consultation in Washington for a week with the Department of Agriculture and the Food Administration:

Seeds and Grains.

The Department of Agriculture has assisted the extension service of the various States of the corn belt in making surveys of the seed corn available and the quantity required. These surveys have been very complete and indicate stocks of 1916 corn from which seed could be selected, also stocks of 1917 corn that could be worked over for seed. The needs of the counties in the northern part of the corn belt that are in shortage have been as closely determined as possible, and definite steps are being taken to assist in relieving the shortages by use of emergency funds which permit the department to buy seed corn and sell it to farmers for cash at cost in sections where special needs exist. Assistance is being rendered along this line in many States.

The entire appropriation, up to March 26, available for the emergency purchase and sale of seed was only $2,500,000, so the department was limited to the extent of relief which it could render by use of the emergency funds. The urgent deficiency act passed March 26 carried the appropriation of $4,000,000 for the emergency purchase and sale of seeds, and the department proposes to expend such an amount from this fund as may be needed in accumulating a reserve of seed corn for late planting and replanting. The needs of the field have been considered carefully, and while it is impossible to determine the replanting requirements, conservative estimates have been placed on the needs of the various States. It is now contemplated by the department to establish a reserve supply of seen corn at points where they can be readily distributed and utilized for the general need of the sections of the country to which they are adapted.

The quantities above mentioned will be held tentatively for the needs of the States for which they were reserved, but it is the general plan to consider the needs of the country as a whole in accumulating reserve stocks. While it is thought that there may be some risk attached to this, it is believed that the necessity of insuring the planting of a large acreage of corn is so great that the department would be remiss in its duty if it failed to provide at least conservatively for late planting and replanting needs.

Be it resolved:

1. We heartily indorse the action of the Secretary of Agriculture in the appointment of the committee on seed stocks, and the work that was assigned to this committee, since the results have been of inestimable value in securing better distribution of seed stocks and have aided in keeping prices within reasonable figures.

2. We heartily indorse the publication of the "Seed Reporter" as being a timely publication of great value in assisting the country in learning of the stocks of seeds and their commercial movements and prices throughout the country.

3. The national seed surveys conducted twice a year by the Bureau of Markets and the Seed Reporting Service are extremely valuable in making it possible for both the farmer and the local seedsman to gain accurate information as to actual available supplies of seed, thereby lessening the opportunity for profiteering, and we recommend that this service be made a permanent feature of the work of the Department of Agriculture.

4. The Department of Agriculture is to be congratulated on the successful efforts it has made to provide for good spring wheat seed for the farmers of the United States, and it is suggested that similar efforts will be made by the department with regard to seed of winter wheat.

5. It is urged that the field inspection of seed grains be extended as far as practicable, and that the various States be called upon to supplement the Federal appropriations that have been made for this purpose and to cooperate with the Federal agencies to the fullest extent possible.

6. In view of the increased cost of vegetable seeds and the consequent dissatisfaction existing among users of vegetable seed, the Department of Agriculture should be requested to investigate this condition with a view of ascertaining its cause and employing such means as are at its disposal to rectify it.

7. In view of the fact that the foreign supply of vegetable seeds is practically cut off by reason of war conditions, all growers of vegetables should be urged to save seed for themselves as far as practicable and to conserve such supplies of seed as may come into their possession.

8. We believe that the flax situation should receive special consideration by the Department of Agriculture and the several States in which it has been demonstrated that flax can be grown, and that serious consideration should be given to the possibilities of the utilization of this plant to the fullest extent possible this year, and especially that information should be obtained as to the stocks of flax seed in the hands of crushers with a view of making the best possible use of these stocks under the present conditions.

9. Steps should be taken immediately to conserve supplies of buckwheat seed that

FROM hundreds of thousands of American farms, in answer to the call of their country and in obedience to the law of their country, American boys have gone and to-day are fighting side by side with hundreds of thousands of American boys from the cities and towns of the country, confronting danger and death.

The duty of us who remain at home in safety to afford the means to make these boys powerful and victorious is a most imperative one.

Buy Liberty Bonds and furnish them with the sinews of war.

are now in danger of being consumed as food, and the increased planting of this crop should be urged.

10. Recognizing the importance of millet as a late seeding crop, especially in the northern Great Plains region, recommendations should be made to the Committee on Seed Stocks of the Department of Agriculture to take definite steps to supply necessary quantities of good stocks of millet seed for sowing for seed, feed, and forage purposes.

11. We recommend the accumulation of clean, moderate-priced alfalfa seed at convenient points in the Northwest, or that information be disseminated as to where such can be obtained, and that the local production of this crop be encouraged in places where it can be economically produced, with a view to producing home-grown seed.

12. We recommend that the Bureau of Markets be more lenient in fixing the grades of wheat for the period of the war, and consider carefully the proposed changes as advocated by the farmers of the wheat States.

13. The advice and information given the farmers of the Northwest in regard to the building of elevators, handling and marketing the crops of small grains, and the selection and treatment of seed wheat has been timely and helpful and should be highly commended.

The Wheat Situation.

Whereas the weekly marketings of wheat having dropped since the middle of February to about 60 per cent of normal, it appears that some farmers have been holding the 1917 wheat from market in anticipation of a larger price:

Whereas in order to fill the allied demands and domestic consumption it is obviously necessary that the marketing of wheat should proceed more rapidly and the available balances in the hands of the farmers should, to a large degree, reach the market by the 1st of May;

1. *It is resolved*, That in the judgment of this committee there should be no alteration in the price of 1917 wheat.

2. *It is further resolved*, That, if necessary, the Food Administration should requisition the remainder of the 1917 crop, by whomsoever held, including farmers.

3. It is the sense of this body that a change at this time in the price of 1918 wheat could not affect the production of winter wheat at all and would not affect the production of spring wheat this year more than 10 per cent.

Fertilizers and Farm Machinery.

Farm machinery.—Whereas the productive capacity of human labor in the production of our staple crops has been increased 500 per cent by the use of farm machinery, the necessity in the present crisis for an adequate supply of all kinds of such machinery and repairs for the same at reasonable prices is obvious.

Whereas the price of many kinds of farm machinery has increased within a year to a point which leads farmers to suspect profiteering, and whereas deliveries both of machinery and repairs are so slow that farmers are handicapped in obtaining a necessary supply, we recommend that the Department of Agriculture make, at the earliest possible moment, a full investigation of all problems connected with farm-machinery manufacture and distribution with a view to providing an adequate supply at prices regulated upon the basis of cost plus a reasonable profit.

Fertilizers.—Whereas at least a normal supply of agricultural lime, rock phosphate, and commercial fertilizers should be available to the farmers of many sections of the country to enable them to produce the largest possible amount of fruits, vegetables, and other staple crops, with the restricted supply of labor available to them, and we believe that the proper use of these fertilizers, where needed, affords the cheapest and most effective means of increasing crop yields: Therefore be it

Resolved, That we indorse and commend the action of the Department of Agriculture in placing fertilizer manufacturers and dealers under license, and we recommend that continued attention be given to this question, with the view of taking such action as may seem advisable in cooperation with the agricultural colleges and the Director General of Railroads, to stimulate the proper use of fertilizers where it has been fully demonstrated that their use is profitable, also to take such measures as may be proper to prevent undue profits by manufacturers and dealers, and to insure as prompt delivery as possible where rail transportation is involved.

Whereas there has been considerable disappointment on the part of farmers of the South regarding the delay in the delivery of nitrate of soda, which the Bureau of Markets has undertaken to supply, and criticisms have been accordingly directed against the Department of Agriculture in this matter.

The committee suggests that a plain statement of the facts regarding the status of this matter would be productive of good results.

Farm Labor.

1. We indorse the present attitude of the War Department toward agricultural labor. From investigation and from statements made by representatives of the War Department we find that for the most part cases of injustice or of error are due to misunderstandings by the local or district board of the policy of the War Department or to errors of interpretation, and that such difficulties may be overcome by reconsideration by the local and district boards as now provided for under the new rules of the War Department.

2. We indorse the policy of the administration in discouraging shipments of material for the construction of State, county, and municipal improvements and unnecessary private improvements, and we recommend that this policy be continued during the war, and we call upon communities to sustain this policy.

3. We fully appreciate the great work being done by the women of the land and their desire to render further service. Women should be employed for the same pay as men in every vocation which they are qualified to fill as well as men, but we do not believe the time has come when women should be employed for rough, heavy work on the farm. We believe that women will render the best service by taking the places of men of farm experience now in the cities and towns so as to permit them to work on the farms. There are many lighter tasks on the farm, such as gathering and picking fruit, that women can perform.

4. During this great stress and scarcity of labor we believe every employee of the Government, whether employed in Washington or elsewhere, should be willing and patriotic enough to extend his work to its extreme limit. We further believe that no person should be idle at the present time and during the war, but rather should work to the extent of their physical ability. No man can now be excused, however remunerative his employment may be, for working only a few days of the week. Public sentiment, the enforcement and if need be the amendment of laws against vagrancy and loafing, should be invoked to the end that the full power of our population be exerted in all necessary industries.

5. We indorse the Departments of Agriculture and Labor in their efforts to secure and distribute farm labor through the Nation, and recommend the hearty cooperation of our farmers in their efforts. We approve all the Government is doing to aid in its solution, yet we are fully convinced that in a great measure the problem must be solved by the States and communities through the cooperation of producers and urban dwellers of farm experience. We especially urge that men of the towns and cities who are capable of performing farm labor adjust their activities in such a way as to meet the demands of the farmers at the periods of greatest strain on the farm. If the nonessential activities of the towns and cities do not voluntarily render this aid and adjust themselves to the needs of agriculture, it may become necessary for the Government in the maintenance of the food supply to suspend such activities, and such action will meet with the hearty approval of the producers of the Nation. We recognize the fine spirit of many school boys in their desire to serve agriculture, and we believe that such service is valuable to them, and wherever they can be utilized full

opportunity should be given to them. It is our belief that the Food Administration, through its State administrators and publicity service, can help greatly in molding public sentiment in the matter of cooperation between town and country concerning farm labor for emergencies, and that all other efforts toward increased production be directed through the existing organizations of the Department of Agriculture and the various State colleges. We understand this to be substantially the arrangement made by the Secretary of Agriculture and the Food Administration.

Definition of "Skilled Farm Laborer."

The committee on labor suggests that a comprehensive definition for "skilled farm laborer" is: A farm laborer who knows by training and experience the ordinary methods and practices employed in growing and harvesting the crops produced in the community in which he lives.

Complying with the request of the Farm Labor Division for a test by which fakes may be culled out from applicants for farm jobs, we recommend that this be done by requiring answers to pertinent questions and that these questions be selected by agreement between the county farm bureau agent and the emergency labor man in the community concerned.

Live Stock.

Cattle are marketed in the following great divisions: First, stockers and feeders; second, (*a*) grass-fat pasture cattle, (*b*) grass-finished cattle meeting the requirements for live export; third, short-fed or half-finished cattle; fourth, long-fed or export and highly finished cattle; fifth, thin cattle, commonly known as "canners."

We recommend that the Department of Agriculture should devise a standard system of market grading for live stock, as well as of meats, and that price quotations for both live stock and their products be based on such standards.

We feel that cattle marketed at the present time in class 4, and known as "exports," owing to the high costs of labor and feed, are not an economical product, and their production should not be encouraged.

Whereas the lack of ocean shipping facilities has resulted in an accumulation of supplies of meats of all kinds which are needed and could be easily absorbed by the present home demand if unrestrained by regulation of consumption, we heartily indorse and commend the action of the Food Administrator in suspending "meatless day" for a period of 30 days, and we are of the opinion that suspension should continue until such time as military and civilian needs of our Army and the shipping facilities necessary to supply these needs make it advisable as a war measure to conserve home supplies. We are further of the opinion that producers should be kept in touch with our national program, both as to production and conservation, in order that they may lend patriotic aid and cooperation by responding promptly and efficiently to the large responsibilities and obligations which rest upon them.

Wide, uncertain, and unexpected fluctuations in market prices of live stock have been a fruitful source of loss and discouragement to the producer. Costs of production, volume of supplies, and demands of consumption do not appear to be the sole factors entering into the price question. On the contrary, market manipulation can often be held accountable for price fluctuations. From the mere fact that supplies of live stock may come to market in large volume on certain days or weeks, it does not necessarily follow that there exists fundamental overproduction of such supplies throughout the land, nor a necessity for lower prices, based on lack of consumptive demand. Prices for market products theortically should be based on the total volume of supplies available for market as disclosed by disinterested and accurate Government statistical information. Thereafter the only legitimate influence in prices should be based on the volume of demand.

Stability of prices is a necessary adjunct to steady production. We therefore suggest that on occasion when supplies of live stock reach the market in temporarily increased, or seasonably increased, volume, that, at least during the period of the war, the Food Administration shall cause increased purchases to be made, and that such increased purchases shall be held in storage for the double purpose of covering periods of decreased and insufficient market supplies, and of creating a reservoir of supplies from which to draw in times of emergency.

While we neither forget nor condone past offenses of the American beef packers, but, upon the contrary, insist on discontinuance of all forms of market immorality, we none the less advocate constructive rather than destructive practices in dealing with these great agencies of internal and international commerce. We recognize and cheerfully concede the fact that the packers may and should occupy a position of distinct economic advantage to the country, in that their capital, extraordinary facilities for manufacture and distribution of meats, meat products and by-products, coupled with long experience and highly developed efficiency, should enable them to find markets and carry on distribution at home and abroad at a minimum average net cost of doing business.

In order that the exceptional equipment of these great organizations may yield a maximum service to the country on terms fair alike to themselves as well as to producers and consumers, we are of the opinion that Government supervision and control should be continued and extended in a businesslike manner, and that any unreasonable margin of profit standing between producer and consumer should be located and eliminated. We are further of the opinion that neither Government operation nor Government ownership is practical and advisable at this time.

Supplemental Report Live Stock Committee.

Owing to the uncertainties of the meat situation as applied to our export demand and the very large sudden demands that are made by our allies upon this country from time to time for supplies of beef, pork, and other products, we recommend that the Food Administration, through appropriate agencies, shall provide and maintain large stocks of such supplies as experience may show are necessary, to the end that this country may be in a position to respond promptly and fully to these unusual and necessary war demands.

Dairy Products.

The dairy situation in this country is such that we believe that special efforts should be made to secure a more liberal use of milk and its products for the coming summer. The blocking up of exports of condensed milk and other dairy products caused, we understand, in part by the reduction in over-seas transportation, together with the public agitation during the winter relative to the price of city milk supplies, is leading to an accumulation of stocks in excess of present demands. The conservation campaign has also resulted in a material reduction in the use of whole milk as well as other dairy products.

It is of the utmost importance to the public welfare that there be a steady maintenance in production, and when one considers that dairying enables the maximum percentage of rough forage and feeding stuffs that have but little human food value except as used through live stock to be converted into readily available human food, it is essential that such industries be not only conserved but stimulated. If this is done, conservation must see that complete utilization of products follows.

We recommend, therefore, as follows:

1. The Food Administration should give wide publicity to its present policy of recommending the liberal use of milk in order to correct any misunderstanding which still lingers in the minds of people that this food product, which is so rich in growth-promoting qualities and so essential to well-being, especially of the young, should be curtailed in use.

2. That a campaign be conducted which will teach the public a more correct appreciation of the relative values of dairy products.

3. We cordially approve the educational and demonstrational work which the Department of Agriculture is now inaugurating in the utilization of skim milk and buttermilk as human food instead of stock feed, and believe that such work, if rapidly extended this season, will be instrumental in utilizing large quantities of highly nutritious food products.

4. We recommend that efforts be made to secure the adoption of such additional stable dairy products as cheese in the Army and Navy rations, as this is a concentrated, highly nutritious food product, capable of transportation with the minimum use of cargo space.

5. The fundamental importance of fluid milk in human nutrition makes it imperative that this essential food supply be furnished to the consumer at stabilized prices based upon the cost of production and distribution with a fair return to producer, distributor, or manufacturer. We heartily approve of the creation of the regional milk commissions established by the Food Administration to determine the cost of producing and distributing milk in its various forms, coupled with a reasonable return to the parties producing or handling the same, in the territories where controversies between the parties could not be adjusted through conferences conducted by the representatives of the various interests engaged in the milk industry and the Food Administration. We suggest that such regional bodies be established in any other territories where controversies between milk producers and purchasers of milk or cream can not be adjusted upon like principles by the Food Administration through mediation. We recommend that special consideration be given to the problems involved in the more economical methods of milk distribution as well as production, with the view that this necessary food be supplied to the public at the lowest possible price consistent with a return of cost and a reasonable profit to those engaged in the industry.

6. While we recognize that there is a general shortage of fats which may make it necessary to conserve supplies of this essential character, it is evident that there is a possibility of expanding much more readily the production of vegetable than such animal fats as dairy products. With the over-seas transportation in such a condition as to curtail seriously export trade, and the likelihood that this summer season is going to see a marked surplus in dairy products, we believe that it should be the policy of the Food Administration to recommend the wise but more liberal use of butter, cheese, condensed milk, and ice cream, with the ultimate view in mind that the supply of dairy products be maintained and the industry not unduly suffer from overproduction and consequent demoralization this summer. By so doing the industry will be in position to meet the inevitable demand from the allies when shipping facilities become improved in the fall. When we recognize how greatly reduced the milk resources of Britain and France are, where such a large percentage of dairy animals have had to be sacrificed, it is imperative that we protect the last remaining milk reserve of the belligerent nations.

Perishables and Poultry.

The subcommittee on perishables has met in connection with experts on fruit, poultry, and potatoes representing the Department of Agriculture and the Food Administration, and are united in making the following recommendations:

1. *Potatoes.*—Whereas indications now point to the fact that at the normal rate of consumption there will be a surplus of approximately 30,000,000 bushels of potatoes on hand on June 30, which will be wasted, and whereas potatoes may be used to take the place of wheat in the diet of the Nation, we recommend:

"That all possible means be used immediately by the Food Administration and the Department of Agriculture to encourage the consumption of potatoes so that the surplus will be utilized.

"Since the wholesale price of potatoes in the leading markets has fallen to a point where there is now little or no profit to the producer, we suggest that an appeal be made to the trade, both wholesale and retail, to handle potatoes at the smallest possible margin of profit so that the consumer may be encouraged to purchase.

"Since the potato is a perishable vegetable and can not be held over in its natural form, and since the potato crop is especially sensitive to climatic conditions and susceptible to diseases, so that an acreage in potatoes sufficient to supply the needs of the country in seasons of unfavorable weather will result in a surplus in years of good weather, we suggest that in the present emergency, and as a policy for the future, every possible means should be adopted to conserve surplus potatoes by drying, and by flour, starch, and alcohol manufacture."

2. Whereas there is grave danger that much perishable fruit may be wasted and lost as food because of failure to secure packages for storing and marketing, we urgently recommend that growers place their orders and secure the delivery of packages at the earliest possible moment, and that the Department of Agriculture and the Food Administration take steps to secure a fair distribution of fruit packages and that they do all they can to facilitate deliveries.

3. *Vegetables.*—We heartily indorse the movement for the planting of war gardens as an effective means of employing in food production leisure hours which would otherwise not be put to productive uses. We call attention, however, to the fact that the employment by well-to-do urban dwellers of laborers on full time in the tilling of gardens and small plats without machinery is uneconomic and wasteful, because such labor would be fully five times as productive if left to be employed by farmers who have a full equipment of modern machinery. We also call attention to the fact that the producer of war gardens is an important factor in the Nation's vegetable supply, as evidenced by the fact that surpluses existed in many places last season and many acres of vegetables were plowed under by market gardeners. This is an economic waste, and we urge the Department of Agriculture to take such means as may be necessary to spread full information to our people so that overplanting will not be encouraged. We believe that the consumption of vegetables may be greatly increased if the facts as made known to our people regarding their food value and their place in a health-promoting diet. We urge the Department of Agriculture and the Food Administration to make known these facts through publicity and otherwise, and we urge that instruction be given through bulletins and home-economics extension courses as to the proper methods of preparing vegetables for the table so that the largest possible consumption will be encouraged.

4. Whereas the transportation division working under most adverse conditions has already accomplished splendid results in improving schedules and in establishing and regulating refrigerator-car lines for the movement of perishables, we hereby express our appreciation of services rendered and strongly recommend that every facility be afforded for a continuation of this work.

5. We urge that there be no relaxation in the practice of careful grading and packing of fruits and vegetables, realizing that these things are necessary to insure delivery to the consumer without waste. On the other hand, we urge growers to avoid all processes which require labor and expense without adding to the food value; for example, the bleaching of the Sultanina Blanche, known in California as the Thompson Seedless, raisin, which should be discontinued because the character and flavor of the raisin from a consumer's standpoint is seriously impaired by this process, entailing a material additional cost.

6. We appreciate the work that has been done by the Department of Agriculture in investigating and developing by-products of fruits and vegetables and recommend that it be continued; and we further recommend that greater publicity be given to the findings of the department along these lines, not only as a matter of policy but because the facts in the possession of the department have real economic value as a war conservation measure. Examples of this are the preparation and use of apricot kernels, which before the war were exported to Germany in large

quantities, and the extraction and utilization of apple pomace in the manufacture of all sorts of jellies.

7. Whereas the poultrymen of the country have been working under serious handicaps of high-priced feeds and inadequate prices for their products, we recommend that their problems be given especial attention.

8. Whereas we believe that the passage of poultry rule No. 14 prohibiting the sale of hens has resulted in great unrest and uncertainty among farmers and poultrymen as to what further may be done to control the sale of their produce and curtail their profits, we urgently recommend that this rule be rescinded at the earliest possible date.

Supplying the Allied Nations.

Resolved, That the committee indorse the policy of the Food Administration in sending food to the allies, and pledge their cooperation in getting to the allies whatever food they need.

Sugar.

Whereas the time has arrived when the American Government and the American people must go on record as against nonessentials and in favor of essentials as a necessary action for the successful prosecution of the war; and

Whereas large quantities of sugar are consumed in the manufacture of confectionery, soft drinks, and unnecessary products, thus using an essential needed for the canning of fruits, preservation of milk, and for other necessary uses;

Therefore we recommend to the Food Administration that such action be taken as will cause a material decrease of the use of sugar for nonessential purposes. And that, in considering the distribution of sugar, priority be given in the following order: Household consumption, preserving trades, ice cream trades, confectionery trades, sweet drink trades.

Publicity.

Whereas it has been the experience of this committee that attendance at these meetings and association with each other and with Secretary Houston and Mr. Hoover and their coworkers has resulted in a much clearer understanding of the national agricultural situation as it exists, and further has resulted in change of viewpoint and final judgment for many of us; and

Whereas we are fully convinced that a fuller understanding of existing conditions and the reasons which have made necessary the acts and regulations imposed from time to time by the Government through its various agencies would result in a much better attitude of mind on the part of the farmers of the Nation and would secure from them heartiest cooperation in the necessary program for food production: Therefore be it

Resolved, That steps be taken at once to put these facts before the farmers of the country in such form that they may clearly understand, and in such manner that they can not overlook the extreme seriousness of the situation and the vital necessity that each man do his utmost in this crisis. We believe that the agricultural and rural press offers the greatest opportunity for this service, and that the publicity divisions of both the Department of Agriculture and the Food Administration should be placed on the highest possible plane of efficiency to accomplish this most important work.

Resolved, That a committee of three be appointed by the chair from this body to confer with the Division of Publicity of the Food Administration to recommend a plan to secure the cooperation of farm editors in dissemination of information to the farmers of the country.

Transportation.

The unusual car shortage and delayed shipment of live stock and grain during the past winter has caused large financial loss to the producers which will tend to curtail production.

Because of the fact that feeders and grain shippers are still confronted with unsatisfactory shipping facilities and lack of prompt information regarding availability of cars, we feel that steps should be taken by the transportation administration which will facilitate shipments and insure a more prompt delivery of farm products.

Enforcement of State Anti-Trust Laws.

The necessity for collective bargaining in the matter of farm products now makes organization just as necessary and essential to the producer as it is to the buyer of his products or in other industries.

We therefore call the attention of the Department of Agriculture and the Food Administration to these matters, and, as an encouragement to production, ask them to take steps with a view to securing for the farmers the same rights and privileges in collective bargaining accorded to other industries, and urge that in the enforcement of general antitrust laws they may not be openly discriminated against because of technical and not substantive violations of the same.

Limitation of Profits in Other Industries.

The committee feels that the patriotic farmers of the United States that have no desire for more than costs of production and a fair profit, and in entirety support President Wilson's Executive Order of the 27th of November upon the profit regulations of the essential food trades as follows:

"EXECUTIVE ORDER.

"I hereby authorize and direct the United States Food Administrator, in prescribing regulations for licensees under section 5 of the act of Congress approved August 10, 1917, entitled 'An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel,' and in enforcing and carrying into effect, so far as it relates to foods, feeds, and their derivative products, that part of section 5 which reads as follows:

"'Whenever the President shall find that any storage charge, commission, profit, or practice of any licensee is unjust, or unreasonable, or discriminatory and unfair, or wasteful, and shall order such licensee, within a reasonable time fixed in the order, to discontinue the same, unless such order, which shall recite the facts found, is revoked or suspended, such licensee shall, within the time prescribed in the order, discontinue such unjust, unreasonable, discriminatory, and unfair storage charge, commission, profit, or practice. The President may, in lieu of any such unjust, unreasonable, discriminatory, and unfair storage charge commission, profit, or practice, find what is a just, reasonable, nondiscriminatory, and fair storage charge, commission, profit, or practice, and in any proceeding brought in any court such order of the President shall be prima facie evidence;'"

"to find that a just, reasonable, and fair profit is the normal average profit which persons engaged in the same business and place obtained prior to July 1, 1914, under free competitive conditions; to indicate, if he shall see fit to do so, what margin over cost will return such a just, reasonable, and fair profit; and to take such legal steps as are authorized by said act to prohibit the taking of any greater profit.

"WOODROW WILSON."

"The White House,
"27 November, 1917."

The committee does insist, however, that it is the view of the farmers that regulation of this type should be extended to all other trade industries in the country.

Appreciation.

The Agricultural Advisory Committee desires to express and to record its acknowledgment and grateful appreciation of the courtesies and marks of consideration extended to it and to the individual members thereof by the Department of Agriculture and by the Food Administration through Secretary Houston and through Mr. Hoover and their assistants, respectively. We recognize the great value of the work of the Department of Agriculture in stimulating and encouraging agricultural production, and in the dissemination of valuable information to the producers of the country.

We recognize in like measure the able, comprehensive, and patriotic work performed by Mr. Hoover and his well-chosen corps of subordinates and assistants. We accept in good faith and in a spirit of

patriotic cooperation, even if at some sacrifice, the policies of the Food Administration, as they have affected agricultural interests, believing that such willing and cheerful cooperation was and is a proper and reasonable contribution to the great task of winning the war. We commend the vigorous enforcement of the laws and Executive orders in pursuance thereof against excessive profits in production of all kinds and against profiteering in war necessities by dealers, wholesale and retail.

Finally, we wish to convey to the Department of Agriculture and to the Food Administration our assurances of confidence, and to pledge to them and to each of them our cordial cooperation in the great service which they are rendering to the Nation and to the world.

GAME BIRDS NOT HARMFUL.

Game, Aquatic, and Rapacious Species Work in Behalf of Farmer.

A brief in defense of some common game, aquatic, and rapacious birds has been prepared by specialists of the United States Department of Agriculture. The specialists set out to prove that many so-called harmful species of birds in these classes are not only guiltless of many crimes of which they are commonly accused, but that they are one of the greatest agencies in the control of insect pests, and that many a disastrous outoreak of such crop destroyers as chinch bugs, grasshoppers, and May beetles have been prevented by the work of the birds in behalf of the farmer. That the truth about their beneficial value may become widely known the specialists have issued a publication, Farmers' Bulletin 497, Some Common Game, Aquatic, and Rapacious Birds in Relation to Man, which discusses 19 species including 5 kinds of hawks and owls.

The horned greba, commonly charged with living entirely upon fish, is cleared by the specialists. The grebe is shown to feed largely on crawfish, other crustaceans, and insects. Terns also have been held responsible for serious reduction of food fishes in some localities, but a careful study of their food habits has shown that only a small proportion of their diet consists of such fishes.

All the shorebirds are strikingly beneficial in their food habits, the bulletin says. The slaughter of these game birds deprives the farmer of valuable allies against some of the worst crop pests. Such game birds as quail, grouse, and pheasant take less insect food than the shorebirds, yet all of them do a certain amount of good. Even hawks and owls have a bad name which for the most part is undeserved, it is said, and indiscriminate persecution of these birds is a serious mistake.

USING MORE WOOL.

Difficult to Estimate How Great Needs Will Be During the Coming Year—Supplies Large.

The supplies of wool in the United States are large for this time of the year, just prior to the taking of the new clip, according to a statement issued by the United States Department of Agriculture in an article in the forthcoming Yearbook. Imports of wool have been greater than usual during the last few years, with the result that stocks have gradaully accumulated in dealers' and manufacturers' hands. At the beginning of this year these stocks amounted to about 617,000,000 pounds in terms of raw wool, and the prospective clip added to the pulled wool will make available in this country about 900,000,000 pounds in 1918. This is about 250,000,000 pounds over the manufacturers' consumption in 1916, and does not take into consideration any wool which we may import in 1918. During recent years imports have exceeded the total production of raw wool in the United States by 12 to 20 per cent. The demand for wool, of course, has increased greatly because of the requirements of the Army, and it is difficult to estimate how great the needs will be in 1918.

MORE than a billion dollars of American agricultural exports were sold to the European nations at war with Germany during 1917. Had this Nation maintained peace at the price of obedience to the German war zone decree this market would have been closed and this billion dollars worth of agricultural products would most of them have rotted on farms and in warehouses, or been used in unprofitable ways, with consequent stagnation and ruin to the American farmers.

Interest as well as duty urges the American farmer to support his Government in this war, and by the purchase of Liberty Loan Bonds furnish it with the sinews of war.

BUY LIBERTY BONDS.

Raw Wool Consumption Increasing.

Since 1914 the consumption of raw wool per capita has been increasing, according to the statement in the Yearbook article, but prior to that date for many years the per capita consumption had been decreasing. It is pointed out that from 5.92 pounds as the yearly average in 1875–1884, the average manufacturers' per capita consumption increased to 6.74 pounds in the next decade, followed by 6.11 pounds in 1895–1904, and 5.63 pounds in 1905–1914. The unprecedented consumption of 8.04 pounds is indicated for 1915, and the large one of 6.39 pounds for 1916, due to war demands.

In the fragmentary record of the consumption of raw wool and of the net manufactured wool in the foreign trade as far as the latter can be estimated, it seems that the ultimate consumption of wool per capita averaged 5.85 pounds in 6 of the 10 years 1875–1884, and 5.14 pounds per capita in the 4 years 1911–1914, followed by 7.93 pounds in 1915, and 6.25 pounds in 1916. In recent years more wool in manufactures was exported than was imported, and hence the lower ultimate per capita consumption of all wool than manufacturers' per capita consumption of raw wool.

Manufacturers' raw-wool consumption increased from the yearly average of 294,000,000 pounds in 1875–1884 to 420,000,000 pounds in the next decade and to 462,000,000 pounds in the next, and the average for 1905–1914 was 515,000,000 pounds, followed by 806,000,000 pounds in 1915, and 651,000,000 pounds in 1916. The ultimate consumption in recent years was a little below these figures because of excess of exports of wool in manufactures.

Gain in Imported Wool Consumption.

Imported wool has relatively gained on domestic wool in the national consumption. It was only 23 per cent of the total consumption, or less than one-quarter, in 6 of the 10 years 1875–1884, and the fraction rose to over one-half, or 54 per cent of the total, in 1911–1914, followed by 70 per cent in 1915 and 62 per cent in 1916.

The wool clip and pulled wool of this country amounted to 306,500,000 pounds yearly in the decade 1905–1914, but in the last three years the average has been 287,000,000 pounds. By the time that the present war had begun to affect the situation, foreign wool had about equaled domestic wool in the national consumption, and since the war began it has largely exceeded domestic wool in consumption.

MONTHLY CROP REPORT.

Delay in Receipt of This Publication Sometimes Unavoidable.

Complaints sometimes reach the Bureau of Crop Estimates that a crop reporter has failed to receive the Monthly Crop Report

as promptly as usual, the delay reported in a few instances being as much as a month.

The copy for the Crop Report is prepared in the Department of Agriculture in ample time, under ordinary conditions, for the Report to be published and mailed on or before the 12th of the month, the limit fixed by law for its publication.

The copy is filed with the Government Printing Office, which under the law prints and mails the Report. The Report still is issued on or before the 12th of the month, but in some cases recently it has been impossible to print the entire edition and mail copies to all on the lists as promptly as has been the rule in the past.

Causes of Delay.

It must be borne in mind that our entrance into the war has made it necessary for the Government Printing Office to handle a vastly increased amount of emergency printing, especially for the Army and Navy, of such importance that everything else has to stand aside. Pressure on transportation at times delays delivery of paper, and in at least one case failure of shipments to arrive on schedule interfered with the prompt publication of the Report. The vast increase in the outgoing and incoming mails for Washington also at times may make it necessary to expedite first-class official mail at the expense of printed material.

The department and the Government Printing Office are giving unremitting attention to the prompt publication and distribution of the Report. It is not feasible to prepare the copy until the reports from the field are at hand, and this makes it impossible to advance the date of delivery of copy to the printer. As the report is a confidential publication until issued, it would not be desirable or feasible to have it printed outside of Government channels, even if existing Federal law permitted the employment of an outside printing concern.

Correspondents therefore are requested to bear in mind the changed conditions and to be as patient as possible when delivery of their copies is somewhat delayed.

CARE OF COLTS AND YOUNG HORSES.

Give the weanlings and immature horses good care. The colts should be given an ample supply of grain and good roughage in order that they may mature into useful work horses. The saving of grain should be made with the idle mature horse and not with the colt. There are many economical rations that can be fed to both young and mature stock, depending on the local feeds available. Write to your State experiment station for information regarding the most economical rations to be fed in your State. Also write to the United State Department of Agriculture for Farmers' Bulletin 803, which gives information on the feeding and management of young horses.

FARM LABOR AT HOME.

A One-Man Meeting That Succeeded in Getting a Whole County Busy in Supplying Help.

The county demonstration agent of Palo Pinto County, Tex., called a war conference. It wasn't much of a meeting in attendance, but it was a great affair in purpose. Only one person was present. That was the county agent. The reason no others attended was because no one else had been invited. This was a very exclusive and a very peculiar war conference. The county agent went out in the back yard and sat under a tree and watched the crimsoning of the western skies and formulated a plan of strategy for his offensive against the Kaiser. Then he called another meeting and let his neighbors in on the plan—but that is getting ahead of the story.

Novel War Conference Held.

"Now, let's see," mused the county agent as he sat alone under the tree, "Let's see whether I understand this agricultural situation. I ought to, since that's what the Government hired me for. And if I know what to do it is up to me to do it. Well, to commence with, we can't win the war unless we produce more food. That is a certainty. The President has said so and the United States Department of Agriculture has proclaimed it in every corner of the land. The farmers have planted, or they are preparing to plant, the acreages that will produce an increased supply of foodstuffs; that is, if there is a sufficient labor supply for cultivation and harvest. But there is a scarcity of farm labor. That labor must be found. But where? Factories and manufacturing plants, shipyards, construction works of all kinds, every industry everywhere wants men, more men. There are not enough men to go around—to fight and to produce—if we try to apportion our man power on a peace basis. We've got to operate on a war basis in supplying farm labor as well as in everything else. We've got to get our farm labor right here at home. There's no use in us trying to get our farm labor supply from some other county in Texas, or from some other State, for the other counties and States are in the same predicament. Either we will fail to produce food, thereby branding ourselves as slackers, or we will have to get our farm labor from town volunteers and high-school boys, and by seeing that there are no idlers in this county—that every able-bodied man does a man's work to back up the boys from this very county who are fighting in France. We are not going to be slackers, that is sure and certain. So we must close our stores and business houses, if necessary, in order that town men may go to the farms to save the crops. We must understand that it is the patriotic duty of every town man of farm experience to quit his desk or store or bank or office and go to work temporarily as a farm hand when and where he is needed in this county, not for the wages he will receive, not for the fun of it, not for the benefit it will be to his health, not as a lark, but to help win the war. For without food we can't win, and without the labor of such men we can't produce enough food."

Then the county agent went in the house and telephoned the secretary of the chamber of commerce, and the presidents of the banks, and the leading merchants. He telephoned representative farmers in various parts of the county. He telephoned the newspaper editors. He told them that he had just left a very important war conference, attended only by himself, at which a policy of vast importance to the county had been formulated and unanimously adopted. He wanted a county mass meeting held to ratify that program and undertake its accomplishment.

Organization Effected.

Such a mass meeting was held, and resulted in the formation of the "County Agricultural Advisory Board," with every representative farmer and business man in the county a member. The organization entered at once into plans for securing at home a sufficient farm labor supply. The following blank card was sent to every man in the county not now engaged in farm work, but who is qualified for such work:

"I agree to work in the cultivation and harvesting of the crops of Palo Pinto County, Texas, during the year of 1918, a total of ..... days, under the supervision of the agricultural advisory board for said county, at the usual average wage paid for such labor. All wage differences to be settled under arbitration."

The card contains space for the name, address, telephone number, and business of the individual signing it.

Throughout the United States similar plans are under way in a great many counties. Sometimes the movement has been initiated by the county agent, sometimes by the chamber of commerce, and sometimes by another agency. But always the agricultural and business leaders of the community are working together enthusiastically, actuated by an understanding that after all is said the bulk of the farm labor supply in most sections must be found at home.

Has *your* county undertaken such a plan? If not, start it now.

Statements to the effect that certain breeds of rabbits produce pelts of high market value are unwarranted. Raising rabbits for the fur alone would be unprofitable with any known breed, specialists say

REDUCE FOOD BILLS.

Mill Workers Raise Vegetables on Land Owned by Textile Companies in Southern Villages.

How industrial companies can help to reduce the cost of living in the families of their workers, and how home gardens, pigs, and cows in mill villages are made to pay is shown in a recent bulletin of the United States Department of Agriculture, "Value of a Small Plot of Ground to the Laboring Man."

Companies Furnish Ground for Garden.

Southern textile companies furnish houses for the cotton-mill employees. The mill buildings, surrounded by the operatives' houses and a few stores and shop buildings, constitute the mill village. The houses are built on separate lots, whose area varies considerably in the different villages. One-fourth of an acre is a fair average size. The extra space on the house lot is intended especially for garden or poultry use. In addition, the company often sets apart a pasture for the free use of cows belonging to the operatives.

Value of Vegetables Raised.

In the studies described in detail in the bulletin, records were taken of 548 gardens, 165 poultry flocks, 74 cows, and 62 hogs in 9 mill villages in the western parts of North Carolina and South Carolina. The average value of vegetables raised on the gardens visited was $29.87 at local prices then prevailing. This includes returns from some very poor gardens and some very good ones. The average cash cost per garden was $3.54, of which $1.51 was spent for hired labor.

Fruit Growing Not General.

Three-fourths of the families visited did not raise fruit of any kind. This is ascribed to the fact that peaches, apples, and even small fruit must be set out a few years before returns are realized, and the tenant who has doubts of remaining for more than two or three years will not set out fruit for the benefit of some one else. The initiative of the mill owners probably will be required to bring about the more general growing of peaches and small fruits in the villages, the bulletin says.

Profit from Poultry.

It was found that the families keeping small flocks of good poultry, feeding them carefully, and keeping them fenced in derived profit from them. Results of the study also indicated that it is profitable for the mill operative to fatten a pig when all the feed does not have to be bought.

In most of the cotton-mill villages the operative is encouraged to keep a family cow. It is evident, says the bulletin, that where families in these villages do all the work and the use of the pasture and stable is free, it may be more profitable for large families to have their own cow than to buy milk and butter for family use.

SPRAY FOR ASPARAGUS BEETLES.

If beetles and larvæ are at work on the foliage of asparagus plants, one or two applications of lead arsenate will kill them. Two pounds of dry lead arsenate or 4 pounds of lead arsenate paste to 50 gallons of water or Bordeaux mixture will make a spray of sufficient strength. This treatment, made after the cutting season, should lessen the number of beetles next year and also enable the plants to make a healthy growth. The two species of beetles affecting asparagus and various methods for eradicating them are described in a recent publication of the United States Department of Agriculture, Farmers' Bulletin 837, "The Asparagus Beetles and Their Control," by F. H. Chittenden, entomologist in charge of truck crop insect investigations.

The common asparagus beetle is distributed over a wide territory extending from Toronto, Canada, through New York and New England, except Maine, to southern North Carolina and westward to the border line between Illinois and Iowa. It has also been reported from one locality in Colorado and three in California. The other species, the 12-spotted asparagus beetle, also known to growers as the "red" species, is not so common and somewhat less injurious. The early broods of these insects feed on the young and tender asparagus shoots and render them worthless for market. Later broods of the common species devour the foliage and frequently kill the plants, and those of the 12-spotted beetle feed on the berries. The bulletin gives brief descriptions of these pests in their various stages and prescribes, in addition to spraying after the cutting season, a number of measures which may be used to control the early broods.

CLASSIFICATION OF BARLEYS.

In response to a widespread demand for authoritative information on the forms of barley, the United States Department of Agriculture has just issued a publication on this subject which should be of value to experiment station workers and advanced students in agronomy. The publication, Department Bulletin 622, The Identification of Varieties of Barley, makes available for the first time a comprehensive outline of the cultivated barley varieties, and aids in their identification.

Four species and 32 varieties of barley are recognized by the writer of the bulletin, who adds four new varieties. The groups of barley have been arranged upon the basis of species, varieties, and subvarieties. All groups have been made to conform with previous usage as far as possible.

The aim of the writer has been to coordinate the various schemes of classification and to reconcile them as far as possible, to make available the work that has already been published on barley, and suggest modifications to obtain a more logical arrangement of the varieties, to add the several new forms of barley which have been discovered during the progress of the work, and to form a basis for a discussion of all the agricultural varieties grown upon the farms in America. It is believed that the new classification will have an agricultural or experimental value also. Certain types of barley are likely to succeed in certain areas, while others are as definitely unsuited to specific regions. It is possible, also, that a study of the existing forms of barley may be useful to pathologists in determining the degrees of immunity to disease of the various groups.

ACCOUNTS FOR SHIPPERS.

A new system of accounting for fruit-shipping organizations, particularly those operating under the procedure which now exists in the Pacific Northwest, has been devised by specialists of the Bureau of Markets, United States Department of Agriculture. The system, installed and tested in eight representative concerns, is described and illustrated in a new publication of the department, Bulletin 590. It is hoped that its adoption will enable a standardization of the many methods and forms now common among fruit-shipping organizations.

The system outlined in the bulletin is intended to cover all operations incident to the handling of growers' supplies and of the growers' fruit from the time it is received at the packing house until final returns have been made for it. The aim has been to avoid duplication and to reduce clerical work. Care has been used to provide a method applicable to the not too favorable working conditions of the local association and to allow for a proper division of labor. The benefits to be derived from the adoption of a uniform system of accounting are obvious, the specialists say, particularly the possibilities of the interchange of information between organizations. In respect to general costs of operation and packing-house costs information gathered in one concern is now of little or no value to another on account of the different methods of keeping accounts in the various organizations.

FURLOUGH FOR SOLDIERS TO DO AGRICULTURAL WORK.

GENERAL ORDERS, No. 31. } WAR DEPARTMENT, WASHINGTON, *April 2, 1918.*

1. It is the intention to make use of the authority to grant furloughs to enlisted men in accordance with the act of March 16, 1918 (Public 105, 65th Cong.), to enable them to engage in agriculture during the present farming season for the purpose of augmenting the agricultural production. For this reason commanding officers may grant such furloughs within the rules here announced whenever it appears that the granting of such furloughs will contribute to the purpose for which they were intended. But it is desired to reduce to a minimum the interference thereby created in the progress of military training and preparation; therefore, whenever the furloughing of an enlisted man substantially interferes with the training or preparation of the organization of which he is a member, the applications will be denied, in which case the reason for the denial will be indorsed upon the application. Furloughs granted under this order will be for short periods, largely for seeding and harvesting time. They may be given by commanding officers of posts, camps, cantonments, divisions, and departments. Such furloughs will not be granted to enlisted men of or above the grade of first sergeant; nor will they be granted in an organization that has been ordered or is in transit from points of mobilization or training to a port of embarkation; and all furloughs granted will be recalled and the men ordered to their organizations when the latter have received preparatory orders for duty overseas. Furloughs granted under this order will be without pay and allowances except that enough pay will be retained in each case to meet allotments in force on the date of this order, war-risk insurance and pledges on Liberty bonds.

2. Furloughs to specially qualified experts in agriculture needed in the service of the United States Department of Agriculture may be granted by the Secretary of War upon application therefor by the Secretary of Agriculture; or in the service of agricultural colleges, established under Federal law and regularly receiving Federal funds, upon application therefor by the presidents or other executive heads of such colleges, provided such furloughs are voluntarily accepted by the persons desired.

3. Individual applications for furloughs submitted by relatives will be on Form 1035 P. M. G. O., which form will be furnished the local boards. After sections 1 and 2 are made out by the applicant the form will be given the local board having jurisdiction of the registrant and it will complete section 3 of the form and then secure the action of the county agent or representative of the Department of Agriculture, and if there be no such county agent or representative, then by the Government appeal agent of the local board. The application will then be forwarded to the soldier's post, camp, or cantonment commander and the soldier given an opportunity to sign section 5 of the form, which signature will be considered as a voluntary application for the furlough within the meaning of the law. If the furlough be granted, the application will be filed by the commanding officer and a certificate furnished the soldier to the effect that a furlough without pay or allowances, except as herein provided, has been granted for the time therein set forth. If not granted, the application will be returned by the commanding officer setting forth the reasons for disapproval in section 6 of the form. If the soldier initiate the application, he will sign section 5 of the form, adding thereto the name of the person for whom he desires to work, and on submission to the commanding officer the latter will forward it to the local board, who will ascertain from the person named by the soldier whether such soldier is required, and if so, the board will then require the filling out of sections 1 and 2 of the form and proceed as if application arose from the person named by the soldier in the first place.

4. Furloughs may also be granted en bloc to men that are willing to accept them upon requests of farmers when the time to be consumed in traveling from the post to the places of labor will not exceed 24 hours. In making these requests farmers will make use of Form 1035, P. M. G. O., making alterations to show number of soldiers requested and adding that they are in a position to pay the wages usually paid in the vicinity, and such wages will be paid to the soldiers assisting them. These applications will be made to the local boards, who will proceed as in the preceding paragraph. When the application reaches the post, camp, or cantonment commander he will cause it to be indorsed on the back by the soldiers who desire to accept work, and such signatures will be considered as voluntary applications within the meaning of the law. If the number of soldiers desired signify their wishes to accept such furloughs, telegraphic authority will be requested by the commanding officer upon whom application is made from The Adjutant General of the Army for the granting of such furloughs, stating the number of men requested and the number of the local board through which the request was forwarded, giving the recommendation of the commanding officer. The Department of Agriculture will then be called on for information as to agricultural conditions in the particular district, and telegraphic instructions then sent the commanding officer.

5. Form 1035 of the Provost Marshal General's Office is here set forth, and the requirements as shown therein taken in connection with this order explain the attitude of the War Department upon the question of furloughs under the recent law.

(220,711, A. G. O.)

By order of the Secretary of War. PEYTON C. MARCH,
Major General, Acting Chief of Staff.

Official:
H. P. MCCAIN, *The Adjutant General.*

STACKING WHEAT.

Cost Depends Largely Upon Method Used—Stacked Grain is Usually of Better Quality.

The acreage covered per day by a given crew in stacking wheat depends upon the yield, distance hauled, size of loads, and methods used, says a United States Department of Agriculture bulletin on Cost of Harvesting Wheat by Different Methods.

For example, says the bulletin, two men and four horses with either one or two of the bundle wagons which are commonly found in the wheat-growing sections of the Northwest, where both men pitch and no one is required on the load, will be able to stack more wheat, other things being equal, than will two men following the usual practice in the East of one pitching while the other man loads. The wagons used in the two cases are usually very different, the western "bundle wagon" being especially built for use in the manner above mentioned, whereas with the type of wagon usually found in the East it would be impossible to haul a very large load in this way because of the difficulty of putting many bundles on such a wagon in such a way that they would carry well. Although the loads hauled on the western bundle wagons do not contain quite so many bundles as do those in the East when loaded by hand, they are put on in less time and with one-half the man labor, which more than offsets this objection. If two bundle wagons are available each man can pitch on a load and take it to the stack, where one will pitch off while the other stacks.

Most Efficient Crew.

This combination is probably the most efficient crew which can be used in stacking wheat, provided the haul is not too long. It is especially recommended for consideration by eastern wheat growers, as in many cases it would be an easy matter to place a temporary rack on their wagons, thus making them well suited for use in the manner described. The adoption of this method would materially reduce the cost of stacking.

Six acres per day for two men and one team appears to be a fair day's work in stacking wheat under most eastern conditions, whereas in the western sections, where the more efficient methods are employed, 8 acres per day for 2 men and 2 horses and 10 acres per day for 2 men and 4 horses would appear to be a fair average.

Stacking Improves Quality of Wheat.

Where stacking is properly done the grain is better protected in stacks than in shocks.

In wet seasons or when threshing can not be done soon after cutting, the importance of this protection is increased. A sweating process also takes place in the stack, which improves to some extent the color, condition, and test weight of the grain and its milling and baking qualities. The improvement may be sufficient to obtain a better market grade, with resulting higher price when sold. A similar sweating process apparently may take place in shock-threshed wheat after being placed in the bin, but to take advantage of this the farmer must have storage room for his threshed grain and must also get it threshed from the shock while it is in as good condition as when placed in the stack.

FEEDING GROWING CHICKS.

Some Timely Suggestions That Will Insure Thrifty Broods.

After the chicks are 10 days old a good growing mash, composed of 2 parts by weight of bran, 2 parts middlings, 1 part corn meal, 1 part low-grade wheat flour or red-dog middlings, and 10 per cent sifted beef scrap, may be placed in a hopper and left before them all the time. The mash may be fed either wet or dry; if wet, only enough moisture, either milk or water, should be added to make the feed crumbly, but in no sense sloppy. When this growing mash or mixture is not used a hopper containing bran should be accessible to the chickens at all times.

After the chickens are two months old they may be fed four times daily with good results. After they are three months old three feedings a day are enough.

When one has only a few chickens it is less trouble to purchase the prepared chick feeds, but where a considerable number are reared it is sometimes cheaper to buy the finely cracked grains and mix them together. Some chick feeds contain a large quantity of grit and may contain grains of poor quality, so that they should be carefully examined, and a guaranty as to quality secured with the purchase.

Sour Milk Will Hasten Growth.

As soon as the chickens will eat the whole wheat—usually in about eight weeks—cracked corn, and other grains, the small-sized chick feed can be eliminated. In addition to the above feeds the chicken's growth can be hastened if they are given sour milk, skim milk, or buttermilk to drink. Growing chickens kept on a good range may be given all their feed in a hopper, mixing 2 parts by weight of cracked corn with 1 part of wheat, or equal parts of cracked corn, wheat, and oats in one hopper and the dry mash for chickens in another. The beef scrap may be left out of the dry mash and fed in a separate hopper, so that the chickens can eat all of this feed they desire. If the beef scrap is to be fed separately it is advisable to wait until the chicks are 10 days old, although some poultrymen put the beef scrap before the young chickens at the start without bad results.

Chickens confined to small yards should always be supplied with green feed, such as lettuce, sprouted oats, alfalfa, or clover, but the best place to raise chickens successfully is on a good range where no extra green feed is required. Where the chickens are kept in small bare yards, fine charcoal grit and oyster shell should be kept before the chickens all of the time, and cracked or ground bone may be fed. The bone is not necessary for chickens that have a good range.

FOOD FOR A QUEEN.

"The King was in his counting house, counting out his money;
The Queen was in her parlor, eating bread and honey."

So goes the Mother Goose rhyme, which shows that honey has long been regarded as food for kings and queens.

Yet the humblest American family can have this choice food if they keep bees in their back yard or on their farm. Bees require little attention—most anyone can master the simple rules essential to successful beekeeping. Try it; but remember that unless bees receive the care they need they will not yield a crop.

DRIVE ON CATTLE TICK.

Antitick Army in Southern States Ready for Battle Against Parasite.

The warm days of spring mean that the battle in the Southern States against the cattle fever tick has been resumed. It is a battle that has always been important, but is particularly important this year, in the opinion of officials of the United States Department of Agriculture, because every steer saved from the ticks means more meat, and therefore that much more food for America and the allies.

Across the southern portion of the United States, in a long semicircle from the Atlantic Ocean to the Rio Grande, extend 100 miles of concrete trenches. They are the cattle-dipping vats, through which the ticks can not pass northward and which are gradually moving southward, driving the tick lines before them. Behind the trenches is the antitick army, which is captained by 285 inspectors of the United States Department of Agriculture, 280 State inspectors, and 1,000 county inspectors. The army is made up of thousands upon thousands of cattle owners, who have come to realize how great is the toll they have been made to pay to the tick and how they can be finally rid of the parasite if they join in the battle against it.

Ticks Multiply in the Spring.

With the coming of warm weather every spring the cattle fever ticks hatch and rise from the grass of the southern fields, and at the first opportunity attach themselves to the hides of passing steers and cattle. They multiply prodigiously. More ticks come from the grass and they multiply. Where one was in the spring millions are in the summer. The steer which has been made to serve as the host of the ticks becomes in a few months a skinny, sickly wreck and a veritable mass of blood-sucking parasites.

The antitick fighters are ready for the tick. They will drive the tick-infested cattle through the dipping vats. After one passage the cattle will carry comparatively few ticks. At the end of the summer they will carry none. Fewer ticks will be in the grass next spring, fewer will be on the cattle in 1919.

When the end of the long antitick war is reached (officials of the United States Department of Agriculture believe victory will be won not later than 1921), the southern cattle industry will have rid itself of a parasite that annually costs tens of thousands of dollars and will be established on a foundation as firm as the concrete trenches now fighting for it.

FARM ORGANIZATIONS IMPORTANT.

In the campaign to make the 1918 food production in the Southern States sufficient to feed the South, the United States Department of Agriculture recommends that cooperation among farmers and among farmers' organizations and business men be stimulated.

In every county where there is no organization, the department says, the people should be urged to perfect a representative county body for agricultural purposes. This county organization should consist, if possible, of representatives from community organizations and should meet regularly with the county agent and definitely work with him in the interest of general food production and conservation. They should act under the leadership of the county agent and through the county and community organizations in the effort to maintain production, to preserve the interests of farmers, and to safeguard seeds, breeding stock, etc.

The department says it is a patriotic necessity that financing of farmers, especially definite financing for food production, should be done at the lowest possible rates of interest.

PRODUCE CLEAN MILK.

Experiment Proves That Milk of Low Bacterial Count Can Be Produced in Practically Any Cow Barn.

Reduction of bacteria in milk does not depend on the kind of barn or expensive equipment so much as on simple inexpensive precautions. Milk with low bacterial count can be produced in barns of ordinary type with less than $20 worth of extra equipment. The dairy specialists of the United States Department of Agriculture have proved this in a practical experiment.

For the purpose of this experiment, four cows were put in an ordinary frame barn. An untrained worker was employed to milk and care for the animals. No extra attention was devoted to cleaning the barn. At the end of six months the barn was no cleaner than many commercial barns.

What the Small-top Pail Did.

Without any changes in barn management the specialists had two cows milked into small-top pails and the two others were milked into ordinary open-top pails. The milk from the open-top pails averaged 497,653 bacteria. The milk from the small-top pails averaged 368,214.

The use of the small-top pail without any extra precaution made a difference in the average count of 129,439 bacteria per cubic centimeter.

Steaming Utensils Death to Bacteria.

The pails and cans were sterilized with live steam, which can easily and cheaply be done with a simple steam sterilizer, which can be made at home or can be purchased complete for about $10. Other conditions remained as before. The milk from the sterilized small-top pails averaged only 17,027 bacteria—a reduction of 351,187 in favor of this simple sterilization. With the open pails, sterilization reduced the bacteria to 22,677—a decrease of 474,976 compared with milk from the unsterilized open pails.

Simple Cleanliness Lowers Count.

In the third step of the experiment the manure was removed from the barn twice instead of only once a week. The udders and teats of the cows were washed before each milking. These reasonable measures of cleanliness reduced the count in milk drawn into the sterilized small-top pail to 2,886 bacteria, and in the sterilized open-top pail to 6,166 per cubic centimeter. Ordinary cleanliness, it can be seen, caused a reduction of over 10,000 bacteria per cubic centimeter.

To make it easier to keep the cows clean, in the final stage of the experiment the manure was removed daily, clean bedding was supplied, and the cows were cleaned with a currycomb and brush. With these final precautions the bacterial count in the small-top pail averaged the very low one of 2,154 per cubic centimeter, or 1,197,847 bacteria less than were found in a sample when the barn and cows were dirty and the utensils were not steamed.

Farmers interested in improving the quality of milk can get further information from the Dairy Division, U. S. Department of Agriculture, Washington, D. C.

MILK with a low bacterial count can be produced in practically any cow barn. Any dairy farmer with a healthy herd can produce such milk with an investment of only $10 or $20 and a little extra care.

The United States Department of Agriculture in an experiment produced low bacterial count milk in a poor dairy barn.

The only changes made were:

- **Simple steam sterilizer for utensils.**
- **Clean cows, especially clean udders.**
- **Small-top milking pails.**
- **Proper manure removal and good bedding.**

The bacterial count fell from as high as 1,200,000 to an average of 2,154.

Any farmer can produce clean milk.

Low bacterial count is the beginning of good milk, but milk must also be safeguarded from other contamination likely in a dirty barn. There is no legitimate excuse for the production of milk from dirty cattle or in a filthy stable. In addition milk must be properly cooled to prevent the multiplication of bacteria.

MARKETS SPREAD PLANT DISEASES.

To detect local outbreaks of diseases of vegetables and fruits which when uncontrolled cause heavy losses in the field or in transit, the food-products inspectors of the United States Department of Agriculture are reporting diseases found in shipments of produce at 23 of the leading market centers of the country. Some of these inspectors are expert plant pathologists and others are market inspectors who have been trained to detect signs of important diseases and rots.

Whenever a shipment shows a serious disease or rot, the department at once notifies its county agent and other representatives in the affected locality and distributes explicit instructions for overcoming or minimizing future losses. The notification to the point of shipment also prevents shippers from continuing to ship material certain to spoil in transit and thus waste car space.

This detection of disease, however, is largely a by-product of the market inspection made at these markets by the department to certify to shippers the condition as to soundness of fruits, vegetables, and other food products, as authorized by the food production act, approved August 10, 1917.

SUGAR SUPPLY SOURCES.

Data Relative to Production and Consumption of Beet and Cane Sugars in the United States.

War's restrictions on the transportation of sugar and war's changes of the sources of supply to importing countries are better understood in their effects on the United States when the relative magnitudes of this country's sources of supply are remembered. During the five years ending June 30, 1911 to 1915, a little more than one-half of the sugar consumed in continental United States was brought from foreign countries, mostly from Cuba; about one-quarter came from our insular possessions, and one-quarter from the plantations and farms of this country.

From foreign countries, mostly from Cuba, the average annual net imports were 4,147,000,000 pounds of cane sugar, mostly raw; from the insular possessions 2,130,000,000 pounds of raw cane sugar were received; and the domestic production averaged 1,873,000,000 pounds of raw cane and refined beet sugar. The total sugar consumption for these five years averaged 8,150,000,000 pounds.

Hawaii was the chief source of sugar among our possessions, and the average annual shipments were somewhat less than 1,200,000,000 pounds; from Porto Rico over 680,000,000 pounds were received, and from the Philippine Islands about 280,000,000 pounds.

Average Five-Year Beet-Sugar Production.

Beet-sugar production in this country has exceeded the production of cane sugar since 1905, and during the five years mentioned averaged 1,303,000,000 pounds, while the cane-sugar crop averaged 570,000,000 pounds.

The forthcoming Yearbook of the United States Department of Agriculture for 1917 will contain an article in which the sugar supply of this country is examined, and this article strikingly reduces the sugar consumption to the number of weeks for which the supply from each source was sufficient in the average of the five years ending with the sugar season of 1915–16. The sugar from foreign sources, mainly Cuba, sufficed for 27 weeks, from our insular possessions for 13 weeks, and the sugar produced in continental United States for 12 weeks. The beet sugar of this country sustained the consumption for 9 weeks and the cane sugar for 3 weeks.

Principal Producing Regions.

Louisiana produces nearly the entire cane-sugar crop of this country, and the beet sugar is produced in a belt extending from southern Michigan and northwestern Ohio westward nearly in the same latitude to southern

Idaho and northern Utah, and in western Nevada; on the Pacific coast beet-sugar production is in southern Washington, southwestern Oregon, in California in the Sacramento and San Joaquin Valleys, and in a large strip of country extending south of San Francisco nearly to San Diego.

The war has reduced the beet-sugar production of France and has cut off the supply of beet sugar to western Europe from Germany, Austria-Hungary, and Russia, and has made recourse to the large cane-sugar crop of Java practically impossible because ships are not available for the long voyage. In this situation in 1917–18, the United States has recognized the needs of the allies in western Europe and the common dependence on Cuba for sugar, and has an understanding with those allies and with the Cuban planters covering the distribution and price of the Cuban crop of the current season.

COOPERATIVE CREDIT UNIONS.

In answer to many requests from individuals and officials asking for assistance in the preparation of a suitable State law for cooperative credit associations or credit unions, the Bureau of Markets of the United States Department of Agriculture has prepared a publication (Service and Regulatory Announcement No. 30) which gives suggestions for such an act, and contains a bill embodying the best views on the subject. The bill, which is submitted only as a tentative model, provides for the organization of associations without capital, as well as for the more familiar form with capital stock. In the form without capital stock it is intended to exemplify to the fullest extent the cooperative idea, and to avoid even the appearance or the possibility of profit making. It is believed, say specialists of the department, that the practical effect of the work of a cooperative credit association will be to accustom men who are not now making use of any banking facilities to take advantage of banking, rather than to withdraw business from existing commercial banks.

Some of the States (Massachusetts, New York, North Carolina, South Carolina, Oregon, Texas, Utah, and Wisconsin) already have enacted special laws providing for the formation of cooperative credit associations. In some of these States, especially in Massachusetts, New York, and New Jersey, organizations have been formed and are working successfully among factory and other workers in cities. The development of cooperative credit associations in rural districts is especially noted in North Carolina.

One source of loss of eggs is the stolen nest. Even if the eggs are found, they usually are not all marketable.

DAIRY vs. BOLL WEEVIL.

How the Dairy Cow Brought Prosperity in the Wake of the Boll Weevil.

An interesting story of how the dairy cow came to the rescue of a section of southern Mississippi which had become badly in debt and greatly discouraged by unsuccessful attempts to grow cotton after the arrival of the devastating boll weevil is told in Separate No. 744, of the United States Department of Agriculture Yearbook.

For many years the section mentioned had continued to grow cotton. The boll weevil reached the district in 1908 and began to show its effects the following year. The year in which the weevil appeared the community produced 31,812 bales of cotton, but the next year receipts fell to 18,178 bales. In 1910 the crop was 8,282, and in 1911 only 3,168. The farmers continued to grow cotton in hopes that the weevil would leave their section, but the efforts gave less and less promise. They could no longer borrow money on the prospective cotton crop and were forced to mortgage their farms to the limit.

Region Faced Financial Ruin.

Finally the decline in the rural districts was reflected in the near-by city. A cotton and woolen mill gave up operations. Everywhere business was affected, and the whole region faced financial ruin. The business men became thoroughly aroused to the situation and began advocating the production of other crops in place of cotton. Through their efforts the farmers attempted to grow peanuts, cane, melons, sweet potatoes, and other crops, but, because the soil had become depleted in fertility and on account of lack of experience in producing and marketing the new crops, these attempts proved to be a failure. There were a few razorback hogs in the county, but little corn on which to fatten them. There were also a few scrub cows, which led some enterprising citizens to believe that the dairy industry could be developed, and as a result a local creamery was built at a cost of $7,000. It failed, however, within a year, and although a second effort was made to start it the result was the same.

The Cow and Legumes.

At this juncture the United States Department of Agriculture and the State agricultural college became interested in the problem and a dairy specialist was sent to the community. After making a thorough study of local problems he interested many of the farmers in the growing of such crops as would furnish feed for dairy cows. Legumes and corn were the crops best adapted to support the dairy cow as well as to build up the soil and keep it clean of weeds. He succeeded, after some opposition, in getting 15 silos built before the end of the first summer. He arranged meetings and campaigns on dairy subjects. He encouraged farmers to weigh and test the milk from each cow once a month, and in this way they were enabled to weed out the unprofitable animals. The creamery was reopened, and by proper management and an increased supply of milk from the community the attempt proved to be very successful. Many former cotton growers became full-fledged dairymen and are now making a greater profit than they ever had made. The business men in the town are becoming enthusiastic, and local bankers, though skeptical at first, are now supporting the movement and are providing funds for the purchase of better dairy cattle.

The work of improvement in the community has spread to near-by sections of the State. Other creameries have been established, and from this beginning, the publication says, the dairy cow has gradually won her way to prominence in the section where "King Cotton" had ruled for years.

CONVENIENCES FOR THE HOME.

"Farm Home Conveniences," a bulletin just issued by the United States Department of Agriculture, takes as its text "Whatever lessens woman's work benefits the race," and then proceeds to tell how to make housework easier.

It does this by describing simple methods of constructing home conveniences, including a kitchen cabinet, fireless cooker, sponge box or bread mixer, dish drainer, serving tray, folding ironing board, iceless refrigerator, coal box, home butter-making equipment, cheese-making equipment, shower bath, home waterworks, fly trap, window screen, and cook stove drier or evaporator. The proper height of a working surface and a cleaning closet also are discussed in the bulletin.

Copies of the bulletin (Farmers' Bulletin 927) may be obtained free from the Division of Publications of the department.

During the next few years the manure spreader will justify its existence more than ever before. All stable waste should be spread over the land before any of its fertility is lost.

Do you want to "do something" for the food supply—meat and eggs—even if only in a small way? Keep some hens. Not a new idea, of course, but until new it never was quite so necessary or mandatory to grasp every food-making opportunity. Try it in the back-yard, beginning wisely on a small scale—say 10 hens.

BREEDING ARMY HORSES.

Government and Farmers Are Cooperating in Producing Cavalry and Light Artillery Remounts.

In order to encourage the production of horses suitable for Cavalry and Light Artillery uses, the United States Department of Agriculture, in cooperating with the War Department, have placed in selected localities good, sound stallions of proper type and offered mare owners special inducements to make use of them. This plan, made possible by a provision of Congress in 1913, grew out of the difficulty the Government has had in securing a sufficient number of Army remounts. Light-horse stock had deteriorated, due to the curtailed demand as a result of the growing popularity of motor vehicles, and farmers had turned their attention to improving the heavier draft horse, says Yearbook Separate No. 754, "Breeding Horses for the United States Army."

Plan of Cooperation.

The plan consists primarily in placing stallions of merit, registered in the proper stud books and belonging to the Thoroughbred, American Saddle, Standardbred, and Morgan breeds in suitable localities in Vermont, New Hampshire, Virginia, West Virginia, Kentucky, and Tennessee. Mare owners may breed to these stallions on the following terms: The owner of the mare agrees in writing at the time of breeding to give the Government an option on the resulting colt as a 3-year-old at a stated price, which so far has been $150. No service fee is charged unless the owner of a colt wishes to be released from the option, in which case it is $25.

This means that practically no money is invested in service fees. If the colt is purchased by the Government no fee is charged, nor is there any charge if the colt is offered to the Government and purchase refused because it does not qualify. The breeder does not have to pay a service fee on a colt which dies, which is deformed, or which is seriously injured. Only sound mares that approach either a Cavalry or a Light Artillery type are used. Records taken June 30, 1917, show that 3,089 colts have been produced since this plan was put in operation at the beginning of the breeding season in 1913.

Community Breeding Encouraged.

The plan has a number of advantages both to the Government and farmers, says the publication. The brood mares are usually farm work animals which generally pay for their feed by doing farm work, and the colts are brought up to birth without cost. High-class stallions are available for the mare owners' use. Community breeding, which is of inestimable value, is encouraged. The object of the remount breeding work is to select for and breed sound horses with quality, stamina, and endurance which conform to the Army's needs, and such animals will also be useful for general farm work, especially in mountainous sections. While it is true that the heavy draft horse is more valuable for most farm work there are many sections where light horses are better suited because of their activity, sure-footedness, superior lung capacity, and endurance.

The Government's plan of aiding farmers in producing Army horses is giving them material as well as educational aid in developing an important phase of their farming operations. Good horse power is indispensable to successful farming and good horses can not be produced without good sires. From the agricultural standpoint alone, the publication says, the remount breeding work should be extended to other suitable localities, to say nothing of the resultant effect in adding to the defensive strength of the country in a military way.

INSURE YOUR CORN CROP.

For the last time, have you tested your seed corn? Fear that May and June may find an unusually large number of cornfields with insufficient plants for satisfactory yields has prompted specialists of the United States Department of Agriculture to make a final appeal for seed testing. The appeal is directed particularly to farmers in the corn belt proper, who rarely before have experienced serious seed-corn troubles.

Much seed that germinated satisfactorily last December is now dead or almost dead, the Federal specialists say, though to the eye it may still appear satisfactory. In order to plant varieties that will ripen, it will be necessary for many to plant seed which germinates as low as 60 per cent; but no seed should be planted this year without knowing what proportion of it will grow.

Seed germinating only 60 or 75 per cent should be planted approximately three times as thick as good seed. Uneven stands are likely to result, for weak seed will germinate only where the soil is in good condition and will fail in poorly drained and cloddy places. Making germination tests of individual ears costs only a trifle, while a poor stand of plants will prove exceedingly costly.

REST ROOMS FOR WOMEN.

Rural and Town Organizations Cooperate in Establishing Them in Many Marketing Centers.

Rest rooms, where farm women feel free to go for rest and refreshment when they are in town on business, have been established in marketing centers in more than 200 counties in the United States. They have been established by women's rural organizations in cooperation with other local organizations, with individuals, with town or city authorities; by business corporations operating private city markets; and by individual merchants. A separate from the Yearbook of the United States Department of Agriculture for 1917 on this subject gives information on how rest rooms have been established in various parts of the country and how they have benefited rural women while they are in town.

Two main principles underlie the successful establishment and maintenance of rest rooms, says the publication. Either there must be a demand arising from business centers, or there must be a community interest which recognizes their need. Such community interest may be aroused and stimulated by the work of women's clubs. Usually a number of farm women's clubs cooperate in the movement and interest civic leagues or other town organizations. Frequently the local county agent has been interested and his efforts have helped the cause. The number of country women dealing with certain business houses often warrants the establishment of rest rooms by the proprietors to meet the needs of their customers.

Various Uses of Rest Rooms.

In financing rest rooms it has been found that women's organizations do not need to raise funds to maintain the room permanently. They take the initiative in getting it started and create sufficient public sentiment to secure a heated room in a convenient public building or sufficient county appropriations to pay for heat and rent. Janitor service is frequently furnished, and the services of a matron are often secured by a small payment by members of the various clubs or by city organizations. The rest room can be made the center of various community activities. Where a matron is employed a woman's exchange can be provided. Packages which otherwise would have to be carried from place to place can be checked free of charge, and in some cases, particularly on Saturdays and holidays, hot lunches can be served at noon. Some rest rooms are provided with a first-aid equipment for use in emergencies, and this has been found very

helpful. Libraries add to the usefulness of many rest rooms.

The usefulness of a rest room depends upon its location, its management, and the feeling of partnership or interest that the farm women take in it. If located in a public building it is likely to be more useful than if located in a private building. Rest rooms convenient to places for hitching teams or parking automobiles near interurban stations, and also convenient to the market, to the grocery, and to the department stores where the country people trade are more useful than those located at some distance

WORK TO WIN WAR.

Montana Farmers Send Pledge of Support to Secretary of Agriculture.

Telegrams exchanged between W. B. Harland, president of the farm bureau organization in Ravalli County, Mont., and Secretary of Agriculture Houston show how these farmers of the West have lined up to help win the war through increasing food production and how their efforts are appreciated by officials in Washington.

The telegram to Secretary Houston from Mr. Harland, dated at Hamilton, Mont., follows:

"Complying with your request for the cooperation of the farmers of Ravalli County through the farm bureau organization to stimulate production and conserve food, the executive committee takes pleasure in informing you that a strong organization was perfected to-day. We are all back of you and pledge our heartiest and organized support."

To this telegram Secretary Houston sent the following reply:

"May I not congratulate your farmers on the organization of a farm bureau and say to them, through you, how gratified the Department of Agriculture is at this patriotic action and at their expression of organized support in food production."

Number of Extension Workers Doubled.

The rapid expansion of the agricultural extension service to meet the present crisis is indicated by the number of new field workers—missionaries for more food—appointed under the food production act. On January 1, 1917, there were 2,001 of these workers—1,363 county agents, 497 home demonstration workers, and 141 boys' and girls' club workers. On March 1, 1918, there were 4,600 cooperative employees of the Department of Agriculture and State agricultural institutions. Of these, 2,645 were in county agent work, 1,515 were home demonstration workers, and 440 were boys' and girls' club workers. At the present time county agents are serving in approximately 2,200 counties, home demonstration agents in 1,100 counties, and urban agents in over 120 cities.

HIDES AND SKINS.

Enormous Increase in Consumption Resulting from Extraordinary War Demands.

Consumption of all kinds of hides and skins in this country increased from 1,221,000,000 pounds in 1900 to 1,557,000,000 pounds in 1909, followed by nearly the same consumption in 1914. Under the extraordinary demands caused by the war, the consumption of 1915 increased enormously to 1,885,000,000 pounds. For the purpose of determining these numbers, nearly all hides and skins are expressed in green, green salted, or pickled weight.

An article that is to appear in the Yearbook of the United States Department of Agriculture for 1917 states that by far the principal item in these grand totals is cattle hides, of which 877,000,000 pounds were consumed in 1900, 1,101,000,000 in 1909, 1,009,000,000 in 1914, and 1,238,000,000 pounds in 1915.

In order of weight, sheepskins stand next to cattle hides in consumption, although much below, and 115,000,000 pounds of these skins were consumed in 1900, followed by increase to 171,000,000 pounds in 1914, and 199,000,000 pounds in 1915.

Closely following sheepskins is the item of calfskins, the consumption of which in 1900 totaled 92,000,000 pounds, with an increase to 142,000,000 pounds in 1909, followed by decline to 124,000,000 in 1914, while the greatest consumption of calfskins for any year occurred in 1915, with a weight of 158,000,000 pounds.

Large Demand for Goatskins.

Goatskins have had a large and important demand in this country for many years and are mostly imported. In importance of weight they follow calfskins, except that in 1915 they exceed calfskins. Their consumption in 1900 was 78,000,000 pounds; in 1914, 124,000,000 pounds, and in 1915, 193,000,000 pounds.

Buffalo hides have supplemented cattle hides in consumption to such an extent that their weight increased from 19,000,000 pounds in 1900 to 47,000,000 pounds in 1915. Horsehides increased from 3,000,000 pounds in 1900 to 41,000,000 pounds in 1915; kangaroo skins ranged from 750,000 to 1,250,000 pounds during this period; pigskins from about 500,000 to nearly 1,000,000 pounds (perhaps an understatement); dogskins from 6,000 to 18,000 pounds; and miscellaneous skins, composed mostly of deer and antelope varieties, declined from 36,000,000 pounds to 6,900,000 pounds.

Per Capita Consumption.

The per capita consumption of domestic and foreign hides and skins, as well as the foregoing total consumption, has been computed with the exclusion of exported sole leather, calf upper, and glazed-kid upper converted to hide and skin weights, and is approximately a tanners' consumption. This consumption increased from 16.1 pounds in 1900 to 17.2 pounds in 1909, declined to 15.3 pounds in 1914, and jumped to 18.8 pounds in 1915. If exports of manufactures of leather expressed in terms of hides and skins were excluded, these figures would be somewhat lower.

Domestic hides and skins have been declining as a fraction of the total consumption. From 1900 to 1915, domestic calfskins declined from 67 to 36 per cent of the entire consumption, or from about two-thirds to one-third, exported calf upper leather being excluded; cattle hides from 94 to 56 per cent, or from nearly the whole consumption to a little more than one-half, exported sole leather being excluded; and sheepskins declined from 75 to 48 per cent, or from three-quarters to less than one-half.

When all domestic hides and skins that enter into consumption are combined, exports of sole, calf upper, and glazed kid upper leather, converted to terms of hides and skins, being excluded, the general decline of hides and skins of domestic production as a fraction of the total consumption is tersely expressed as from 75.3 per cent in 1900, to 59.4 per cent in 1909, to 46.3 per cent in 1914, and to 38.1 per cent in 1915. Otherwise stated, the decline from 1900 to 1915 was from six-eighths to three-eighths, or to one-half of the former fraction, partly caused by war demands.

FEDERAL AID IN ROAD BUILDING.

Much misunderstanding seems to prevail as to the means by which Federal aid in road building under the Federal aid road act of 1916 may be obtained, says a recent publication of the United States Department of Agriculture.

"Many county officials and private citizens," says the publication, "submit to the Department of Agriculture inquiries or applications looking to the obtaining of Federal aid for a local highway. To these inquiries and applications the answer is invariably made that under the terms of the Federal act itself the Secretary of Agriculture may deal only with the State Highway Department and that the initial power of selection of roads upon which Federal aid is to be expended rests with the State highway department."

Tools and materials should be kept in their proper places. Do not keep all sizes of bolts or screws mixed together in a single receptacle, but fit up suitable boxes or bins, so that the supplies may be accessible on short notice.

INCREASE OF HORSES.

More Animals on Farms Notwithstanding Large Use of Motor Vehicles and Demands of Army.

Substitutions for the horse have so far failed to diminish his number on farms, where he is mostly bred. Since he was first separately counted in the census of 1850, his number has grown from 4,336,719 on farms in that year to 10,357,488 in 1880, to 18,267,020 in 1900, and to 19,833,113 in 1910, and the recent estimate of the United States Department of Agriculture for 1918 makes the number 21,563,000.

The railroad did not verify the common prophecy of the horse's gloomy future nearly a century ago, and many years elapsed before the heyday of the bicycle arrived with its expected menace to the horse. That machine of pleasure and toil diverted attention from the first real antagonist of the horse, the electric street railway, and this was a formidable one. Street-car service could not have been developed by horses to the extent that it has been carried by electricity, yet there was an enormous displacement of horses when they no longer pulled street cars. It is roughly estimated that 2,000,000 horses would be required to move the street cars now in city service and that farmers would need to keep a stock of perhaps 3,000,000 horses to produce this supply. Yet, horses kept on increasing.

Replacement of Horses by Motor Cars Exaggerated.

Apparently the most effective foe of the horse has appeared in the last 10 years in the motor vehicle, although its importance in this respect is popularly exaggerated. According to statistics collected by the United States Department of Agriculture, the total State registrations of motor cars were 48,000 in 1906, about 500,000 in 1910, over 1,000,000 in 1912, over 2,400,000 in 1915, and 3,512,996 in 1916.

Automobiles do not mostly displace horses but many are used by men in occupations dependent on either horses or automobiles for personal movement, such as real estate agents, builders, and some merchants and manufacturers, and there is also the large public automobile passenger service in cities and, again, the large number of automobiles owned by farmers in place of driving horses. The bulk of the automobile owners, off farms, however, would not be owning horses as the alternative.

Motor Truck Displaces Three Horses.

With motor trucks and commercial vehicles the case is different. Here is clearly a complete substitution of fuel power for horse power. It is the opinion that every motor truck on the average displaces three horses. The State records often merge the registration of motor trucks and commercial vehicles with that of automobiles, but, to the extent that the separation is made, it is known that 118,682 of the former were registered in 1916. Probably the displacement of horses by motor trucks and commercial vehicles represents a stock on farms of a few million horses, and to these must be added the stock eliminated by the automobile.

Last of all, the farm tractor has appeared, with conjectural possibilities, but as yet with no perceptible displacement of horses in the country at large.

War Increases Demand for Horses.

Unusual and large demands for horses for war purposes have been made since the autumn of 1914. During the 10 years preceding, from 19,000 to 40,000 horses were exported annually, while the imports were from 5,000 to 33,000, so that the net exports were no appreciable draft on domestic production. In the first year of the war 289,340 horses were exported, in the second 357,553, and in the third 278,674 horses, and within less than a year the needs of the Army of this country have called for a large number of horses.

Notwithstanding the various forces that have been working against increase of horses on their breeding places, or rather, in common expectation, to reduce their numbers at a strong rate, the fact is that horses on farms increased at the average yearly rate of 183,000 since 1900 and more than that since 1910, or 216,000 per year. Per capita of the population, farm horses tended to increase from 0.19 of 1 horse in 1850 to 0.24 in 1890 and 1900, after which the decline has been to 0.20½ in 1918, or still above 1850. At the same time, however, by means of machinery the farm horse has constantly gained as a producer.

Farm Price Decreases.

Strange though it may seem, the average price of a horse at the farm, all ages and conditions included, is less than it was four years ago, and even eight years ago. Since 1897 horse prices at the farm for January 1 had risen from $31.51 to $111.46 by 1911, the highest average in the Department of Agriculture's record of 58 years, but a decline followed to $101.60 in 1916 and then a gain to $104.28 in 1918, apparently caused by the war. The explanation of the arrested advance in price and subsequent decline is said to be "gasoline," although this motor fuel has not yet caused a decline in the number of horses.

DUAL-PURPOSE FLOWERS.

"Full many a flower is born to blush unseen And waste its sweetness on the desert air."

Even the sweetness of flowers can and should be utilized during these war times. Make the flower serve a double purpose. The beekeeper who understands the care of bees can greatly increase the sugar supply of the Nation by saving more of the nectar.

SWEET-POTATO WEEVIL.

Southern Warehousemen Asked to Prevent Spread of Pest.

The present extraordinary need to conserve all food supplies, says the United States Department of Agriculture in a letter to owners and managers of sweet potato storage houses in the Southern States, makes it the duty of every warehouse owner or manager to take extreme precaution that no sweet potatoes infested by the sweet-potato weevil be sent from warehouses into uninfested or weevil-free regions. The department asks the thorough and active cooperation of warehousemen to eradicate the weevil from regions where it has obtained a foothold and to restrict its spread. It is hoped that every storage warehouse will not only refuse to receive weevil-infested potatoes but will employ every means to guard against infestation of new localities, either through the use of infested potatoes as seed or through their sale for use as food.

Sweet-Potato Weevil Spreading.

A recent preliminary survey conducted in the Southern States by agents of the Bureau of Entomology of the department showed that the sweet-potato weevil, which is described as "a most dangerous and destructive enemy of the sweet potato," is rapidly increasing its range and that it has appeared in many regions in which its presence has not hitherto been suspected.

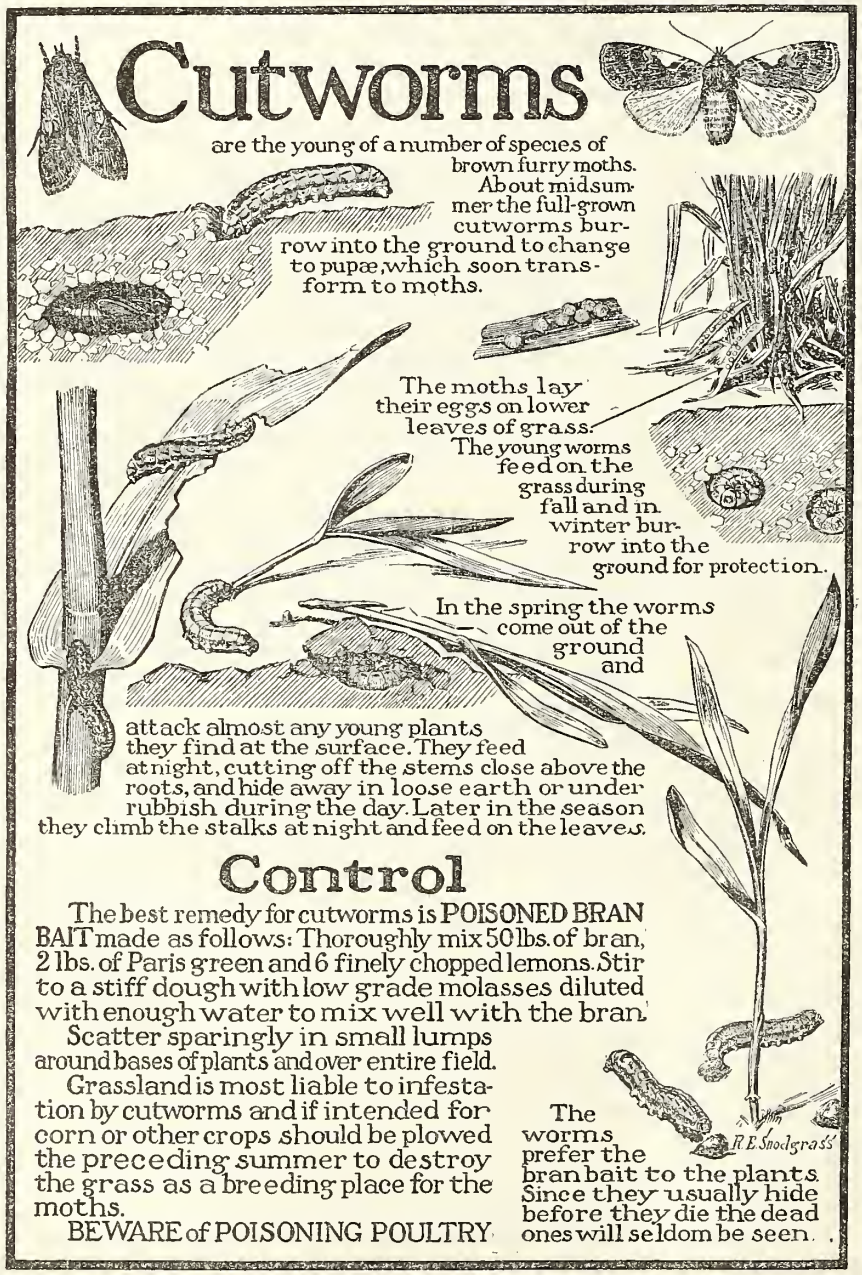
This pest attacks the sweet potato both in the field and in storage and in some localities is responsible for the complete abandonment of all attempts to grow this important food crop, since the weevil is likely, in localities where it is well established, to destroy from 50 to 95 per cent of the crop. In the comparatively warm atmosphere of storage houses it breeds throughout the winter and is certain to infest clean potatoes stored with infested ones. The Bureau of Entomology requests warehousemen and others to furnish the bureau with a list of the localities they know or suspect to be infested, as such information will enable application of concentrated effort toward the control of the pest.

How to Prevent Cutworm Losses

LAND to be planted to corn the following spring, especially such land as has laid in grass for a considerable time and is likely to contain cutworms, should be plowed in midsummer or early fall about the time the eggs are laid or, better, before the eggs are laid, for then vegetation which is suitable for the moths to lay their eggs upon is removed. The earlier the preceding year grass-lands to be planted to corn are plowed, the less will be the probability that cutworm moths will have laid their eggs thereon, and the less, consequently, will be the danger of injury by cutworms the following year.

Late fall and winter plowing of grasslands, although not as effective as early plowing, will destroy many of the hibernating cutworms, as well as such other important corn pests, and should be practiced when earlier plowing is impracticable.

Pasturing hogs upon land supposed to harbor cutworms is a beneficial practice, as these animals root up and devour insects of many kinds, including cutworms, in large numbers. Farm poultry, if trained to follow the plow, will prove of inestimable value.



WHEN cutworms are abundant on cornland, the use of poisoned bait is recommended. This may be prepared as follows: Mix 50 pounds of wheat bran, 2 pounds of Paris green or crude arsenic, such as the by-product from copper smelters, and 6 finely chopped oranges or lemons. Mix to consistency of stiff dough by adding low-grade molasses, adding water also when necessary. Middlings or alfalfa meal may be successfully substituted for bran. Distribute this bait over the infested field in small lumps; sprinkle it sparingly around each hill. In fields that are infested, distribute the bait as soon as the corn begins to appear above ground. Promptly replant the injured hills. During the warmer spring months cutworms feed mostly at night and burrow into the soil during the day, so that the bait usually will be more effective if applied during the late afternoon or early evening.

Cutworms often migrate to cultivated fields from adjoining grasslands. In such cases protect the crops by running a narrow band of the poisoned bait around the edge of the field or along the side nearest the source of infestation.

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., APRIL 24, 1918. No. 38

COTTAGE CHEESE.

Workers Sent to Every State to Encourage Production and Use of This Meat Substitute.

To encourage the use, as well as the making, of cottage cheese—a cheap and palatable substitute for meat—the United States Department of Agriculture has launched a campaign in which nearly a hundred field workers will take part and which is to carry to every State in the Union this lesson:

Cottage cheese is made from skim milk—now largely wasted or fed to animals. A pound of cottage cheese has the same food value as a pound of meat. Make cottage cheese, and thus put to valuable use wasted skim milk. Eat cottage cheese; save the meat for our soldiers and the allies.

Three of the big divisions of the Department of Agriculture are working in the campaign, which also has the cooperation of the United States Food Administration.

Encouraging Its Use on City Tables.

The Bureau of Animal Industry, through its Dairy Division, is sending 47 women, dairy agents, to as many States to stimulate the making of cottage cheese on farms and also to cooperate with urban demonstration agents in encouraging the use of cottage cheese on city tables. The States Relations Service has sent a party of women home-demonstration agents to various cities to demonstrate many new and attractive cottage-cheese dishes originated in Uncle Sam's food laboratories in Washington. From Cleveland the home-demonstration workers will go separately to the other cities and towns to repeat their work. The Bureau of Markets, meanwhile, is sending agents to the cities visited by the home-demonstration campaign. The Market's men are getting in touch with wholesale and retail distributors of cottage cheese. Twenty-two men also are sent out by the Dairy Division to encourage the production and improve the quality of cottage cheese produced in creameries and milk plants.

Cottage Cheese a Real Food.

The trouble about cottage cheese, according to officials of the department, has been that housewives somehow have got the impression that it is merely a relish or the material for a salad, and not what it is—a real staple food. One big object of the campaign is to dispel this impression—to convince housewives that cottage cheese is not merely suitable for a sandwich filling, but is a palatable and nutritious food that can be made to serve as the basis of sustenance for even hard, outdoor workers. Furthermore, cottage cheese can be served in many other ways besides the white paste form with which most people are familiar.

Cheese Dishes Prove It.

To prove this, a luncheon was given recently in the Department of Agriculture at Washington, and those who attended were literally astounded by the variety of new and unexpected ways in which cottage cheese was served. "From soup to nuts," cottage cheese was prominently on the menu. There were cottage-cheese soup, cottage-cheese sausage, cottage-cheese salad, cottage-cheese tarts, honey whey, and whey punch. Recipes for the making of these and other dishes are to be made available by the home-demonstration workers to every housewife who desires them.

There is even a cottage-cheese song. It is not made from cottage cheese, but it celebrates its virtues. The 47 women, who are going into 47 States, sang it at the cottage-cheese luncheon. One stanza runs this way:

If a body see a body making cottage cheese,
Try it, eat it, talk it, preach it, boost it, if you please.
We are out to save skim milk and make it into cheese.
Let Uncle Sammie have the meat—and send it o'er the seas.

THE cycle of money invested in Liberty Bonds is short and complete. The people lend the money to the Government; the Government lends some to our allies; and our Government and our allies straightway spend the money, or the greater portion of it, among the people of the United States. In some instances the money paid in by wage earners on one installment of Liberty Bonds is paid by the Government to their employers and by their employers paid back to them in the way of wages before the next bond installment is due.

BUY LIBERTY BONDS.

FEDERAL STANDARDS.

Order Makes New Grades for Shelled Corn and Wheat Effective On and After July 15, 1918.

Revised standards which affect the grading of wheat and shelled corn which moves in interstate and foreign commerce on and after July 15, 1918, were fixed and established by order of the Secretary of Agriculture on Saturday, April 13, 1918, under the provisions of the United States grain standards act. The new standards supersede those now used and which will continue in effect until July 15, 1918.

The New Wheat Grades.

The department announces that the new wheat grades will result in a greater proportion of the crop falling into the higher grades. The more important of the changes are:

Dockage will be expressed in terms of whole per cent rather than half per cent, disregarding fractions, and the definition of dockage specifically requires recleaning and rescreening so that as large a proportion as possible of cracked wheat will be recovered.

The more definite term "foreign material other than dockage" has been substituted for "inseparable foreign material."

The allowance for wild peas, corn cockle, and similar impurities is more liberal.

The percentages of hard kernels required in the premium subclasses of Hard Red Spring, Hard Winter, and Common White have been changed and made more liberal.

The minimum test weight per bushel requirements generally are reduced, except for grades 2, 3, and 4 in Hard Red Spring wheat and grades 1 to 4 in Common White and Club White.

The maximum percentages of moisture allowed have been increased for all grades except for grade No. 2 in Hard Red Spring and Durum.

The total wheat of other classes permissible is increased in every grade, No. 1 now permitting 5 per cent and other grades 10 per cent. Special limitations for certain wheats of other classes now apply only to the first two grades.

The total damaged wheat permitted has been doubled for grade No. 1. Small amounts of heat-damaged kernels are to be

permitted in grades No. 1 and an increased amount in grade No. 2.

The quantities of smut allowed before designating wheat as "smutty" have been doubled.

The subclasses Red Spring, Humpback, and Soft Red have been eliminated from the standards, and grades for garlicky wheat added for all classes.

Corn Standards.

The corn standards in the main involve the addition of weight per bushel requirements for all numerical grades and the allowance of small quantities of heat-damaged kernels in grades Nos. 2 and 3. Separate sample grades have been established for white, yellow, and mixed corn.

The revised wheat and corn standards are issued in the form of Service and Regulatory Announcements No. 33 of the Bureau of Markets. These printed copies are being mailed by this department to all parties who have been receiving copies of the grain standards publications. The department urges all members of the grain trade, especially grain farmers and country shippers at points where licensed inspectors are not located to thoroughly familiarize themselves with the new grades.

SAVE THE GAME BIRDS.

Department Appeals to Sportsmen to Assist in Conserving This Food Asset.

In response to numerous requests for information concerning the Federal law for the protection of wild ducks and other migratory birds, the United States Department of Agriculture has announced:

The last day of the open season for hunting migratory game birds under the Federal regulations was January 31, and it is now unlawful to capture or kill migratory game birds anywhere in the United States.

There is a widespread demand for the enforcement of the present game protective laws, and the department is of the opinion that a continuance of these laws will insure not only the safety of the breeding stock now held in reserve, but will guarantee to sportsmen the perpetuation of their shooting opportunities.

State game commissioners and sportsmen in nearly every State report that more wild fowl were killed during the open season just closed than in any season for many years, and the increase in the number of birds is attributed to the abolition of spring shooting under the operation of the Federal migratory-bird regulations.

The law already has been very beneficial to sportsmen and as a food protective measure; and under the continuance of existing protection, there is every reason to hope for an ever-increasing supply of wildfowl which will greatly improve shooting conditions in the years to come.

Appeals to Patriotism of Sportsmen.

The department appeals to the patriotism and true sportmanship of all persons to cooperate with it in the enforcement of the Federal law for the protection of migratory birds, especially at this time when the problem of conserving the food supply is taxing the ingenuity of the world. It is gratifying to know that the majority of sportsmen have observed the Federal regulations, and this fact has contributed largely to the successful results accomplished. A sense of patriotic duty should impel everyone to conserve this natural food asset, thus perpetuating the species and increasing the supply for the benefit of all the people.

The department has planned to increase greatly its force of wardens, who will be actively engaged during the spring migration in securing evidence upon which to base prosecutions against those who may violate the law.

GOOD business as well as patriotism urges support of the Government in its financial needs, and to no class of Americans more than to the farmers of the Nation whose own welfare is indissolubly bound up with that of the United States Government.

BUY LIBERTY BONDS.

SPRAY POTATOES.

Control of Insects and Diseases Causing Loss of 100,000,000 Bushels Possible.

Spraying will control insects and diseases which cause the yearly loss of more than 100,000,000 bushels to the potato crop. Specialists of the United States Department of Agriculture make this statement in a publication, "How to Increase the Potato Crop by Spraying," recently made available for large and small growers. If spraying were not now practiced, the present enormous loss would be even greater, the specialists say, but sprays are not used as widely or as thoroughly as they should be. It is believed that a wide distribution of this publication will help to prevent the heavy damage which is now suffered generally.

The Bulletin tells how to control the Colorado potato beetle and late blight—the worst enemies of the potato—blister beetles, flea beetles, cutworms, and other caterpillars, leafhoppers, aphids or plant lice, early blight, and other foliage diseases. For most of the insects and for the diseases spraying with Bordeaux mixture and arsenate of lead is recommended, but for leafhoppers and plant lice contact sprays, such as nicotine sulphate and emulsions, are the best. For blight Bordeaux mixture is an effective means of control. The Bulletin gives detailed directions for preparing and applying these sprays, and also describes other methods calculated to help protect the crop, such as jarring and driving, crop rotation, and clean cultural practices.

DOG LAWS ADVOCATED.

Need for More Wool and Mutton Makes Preventive Measures Necessary.

To meet the menace of the sheep-killing dog, which is recognized as one of the greatest hindrances to mutton and wool production in the United States, several methods are suggested in Farmers' Bulletin 935, "The Sheep-Killing Dog," issued by the United States Department of Agriculture. Uniform State dog laws are advocated as probably the best method, and a digest of existing State laws and the complete text of two satisfactory laws (those of Pennsylvania and West Virginia) are given in the Bulletin. The use of dog-proof fences is suggested, and the cooperation of owners of dogs is said to be important.

"The war needs of the United States and the allies make it imperative that the number of live stock be substantially increased," says the Bulletin. "The whole of Europe is contending with a shortage of all classes of live stock, and is facing a problem in the supply of farm animals that will not be solved for years after the war is over. The entire world is in need of wool, and it will take some time after peace is declared to restock the world trade. The need of an increased meat supply and the necessity of a greater wool supply should make the sheep one of the most profitable of farm animals.

"Men who have entered into the sheep business and have failed to find the keeping of sheep profitable, agree that one of the greatest causes for their discouragement has been the sheep-killing dog. * * * Thousands of sheep are ruthlessly killed each year by dogs, causing a monetary loss to sheep owners of over $1,000,000 annually. The greatest setback of all that the dog causes to the farm industry as a whole consists in keeping out of the business men who are otherwise inclined to go into it."

Sweet-potato losses from black rot, foot rot, and other diseases in the field result mainly from failure to select and disinfect seed and to practice sanitation in the beds.

SAVE TIME AND LABOR.

Different Methods of Cultivating Described by United States Department of Agriculture.

Reduce labor cost 40 per cent.

Do the job in one-third the time.

A farm practice not now generally employed will do that in cultivating many crops. It doesn't involve buying new implements; it means only a different use of those already on many farms. Briefly, it is the use of the weeder or the spike-tooth harrow instead of the usual one-row cultivator in cultivating crops like corn, cotton, and potatoes. A specialist of the United States Department of Agriculture describes it:

On well-prepared ground which is free from stones, clods, and trash a two-section harrow or a 12-foot weeder can be used for all but the heaviest cultivating until the crops are 5 to 6 inches high, and will do the work in one-third the time required by a two-horse cultivator. By using the larger implements the cost of cultivation is reduced from 35 per cent to about 20 per cent of the cost of growing the crop, besides releasing valuable farm labor for other work during the busy season. If desired, the crops can be cultivated twice as often during the first part of the season, in which case there will be little hoeing and cultivating to do during haying. In either event the weeds are killed wholesale in May instead of a row at a time in June.

Not a Severe Treatment.

Driving a weeder or even a harrow over a young growing crop is not as severe treatment as would appear. Most crop plants are tough and heavily rooted and are not damaged permanently either by the harrow or the horses. A few plants are uprooted and there is some tearing of the larger leaves, but this can be entirely offset by seeding a little more heavily than usual. Weeds, on the other hand, are mostly shallow-rooted, and are nearly all destroyed. However, the harrow or weeder must be used before the weeds exceed an inch in height in order to be effective. Perennial weeds, of course, like quack grass, Canada thistle, and milkweed, can not be destroyed in this manner after they have become well established.

Injury to the stand is avoided by slanting the teeth of the harrow backward about 30 degrees, although an excessive slant is undesirable. When a weeder is used the teeth directly over the rows are often removed. Either tool had best be used in the afternoon or on a hot, dry day when the plants are wilted and limp. The period of greatest danger to the stand is just as the plants are coming through the ground, at which time and for a few days thereafter harrowing is inadvisable. A short trial will demonstrate whether the injury is greater than the saving, although one should not lose courage too quickly.

Harrow These Crops.

Crops which can be harrowed successfully include corn, cotton, potatoes, field beans and peas, sugar beets, sorghum, cane, peanuts, Sudan grass, alfalfa, sweet clover, wheat, barley, oats, and rye. The grain crops are harrowed more to remove wild mustard and other weeds than for the sake of cultivation. Special harrows are made for broadcast alfalfa.

Tobacco, cabbage, and other transplanted crops, as well as young grass and clover seedings and most truck crops, are too delicate for this method of cultivating.

Harrowing can not be expected to give good results unless the surface soil is in good tilth. The object of harrowing is to maintain, not to make, a seed bed. For this reason the practice is most popular on the lighter types of soil, as these are easily prepared and worked. Very good results are secured, however, on heavy clay loam soils, and the practice is rapidly extending as the requirements become more generally understood.

Stiff clay soils, wet soil, and soil on which a hard crust has formed should not be harrowed, as the implements must be weighted so heavily that they will injure the crop.

Harrowing may begin as soon as the crop is planted and should be repeated after every rain, or as often as the fine little weed sprouts appear. Do not wait until the field is green, but watch the ground closely and catch the weeds as they are germinating. In case of continued wet weather the harrow must give way to the cultivator.

When to Drive Across Rows.

On light soils, as a rule, the harrow is run in the direction of the rows when the crop is in ridges, and across the rows or diagonally when planted level. On heavy soils running with the rows is apt to drag out more plants than cross harrowing. Experience will indicate the best plan in each case.

Harrowing need not be discontinued until the crop shows signs of severe injury. The small grains can be cultivated with a weeder until they begin to head out, if necessary, while corn, sorghum, and Sudan grass will withstand the harrow until the plants are 5 to 6 inches high. With the broader-leaved crops the period is somewhat less.

A light weight, steel-frame, spike-tooth harrow, with 30 or more half-inch steel teeth per section, is probably the best tool for general use. The spring-tooth weeder is better on light, sandy soil and for cultivating while the crops are very small and very large. Weeders are now made with teeth stiffer and heavier than formerly, so as to work better in heavy ground. Disk harrows, spring-tooth harrows, and the old-fashioned A-shaped wooden harrow are not suitable for this class of work.

STANDARD CONTAINERS.

Federal Law Applies to All Interstate Shipments of Berries, Vegetables, and Other Produce.

All interstate shipments of fruits and vegetables in containers must be in packages that conform to the provisions of the United States standard container act, says an announcement from the Bureau of Markets, United States Department of Agriculture, which is charged with the enforcement of the standard container act. The baskets, crates, hampers, and boxes must be in sizes containing half pints, pints, quarts, or multiples of quarts, slight variations either over or under size may be allowed, provided the average for any shipment conforms to the standards. Climax baskets for grapes can be made only in 2, 4, and 12 quart sizes and of the dimensions specified in the act.

The variations from standard sizes are made, it is stated, because of the nature of the containers, they being usually rough finished. No allowance for products heaped over the edge of the container is made, and the capacity of a container is determined by stricken measure tests.

Although the law applies only to interstate shipments it is probable according to the bureau, that intrastate shipments will be generally made in United States standard containers, because many manufacturers have arranged to make no containers except those that comply with the Federal size requirements. Even shippers whose products are usually consumed in their own State are said to favor packages complying with the United States standard container act, because they have no assurance that their produce will not be sent across State boundries before it is consumed.

The enforcement of the standard container act will tend to eliminate deceptive practices in marketing fruits and vegetables, say the specialists, and will give a "square deal" to both the purchasing public and the trade. Over 40 food products inspectors already stationed in the large receiving markets are available for enforcing the act.

THE test is on—does German autocracy breed better men than American democracy?

BUY LIBERTY BONDS.

FIGHT WHITE GRUBS.

Grubs Expected to Be Abundant and Destructive in Northern States—Control Corn Root-Aphis.

White grubs are invariably numerous the year following an abundance of the parent May beetles, the Bureau of Entomology, United States Department of Agriculture, advises. May beetles were common last year in many sections north of a line drawn from Philadelphia to Des Moines, Iowa, and in this area in localities where the grubs were destructive in 1915 they may be expected to occur again in destructive numbers this year (1918). Although the parent May beetles were not as active or conspicuous last year as in some previous years on account of the cold, late spring, nevertheless many eggs were laid and the grubs hatching from these were to be found last fall in ground which was in timothy, blue grass, or small grain last spring. This year these grubs will be large enough to do much damage to such crops as corn and potatoes when planted on grub-infested ground.

It is impossible at this season to determine the abundance of grubs in a piece of ground without digging 2 to 3 feet into the earth, since the grubs are still in their winter quarters and will not become very active until the last of April or first of May; but, other conditions being equal, the grubs may be anticipated in fields which were in timothy, small grain, or other crops, excepting clover, which covered the ground during the months of May and June, 1917. These fields should, so far as possible, be avoided for corn this year in the white-grub area.

Precautions Where May Beetles Were Plentiful.

Ground which was in corn or other wide-row crops and was kept cultivated during the flight of the May beetles in May and June of 1917 or which bore a heavy stand of clover is less likely to contain grubs, and corn or potatoes can be planted on such ground with reasonable safety. In other words, *in localities where white grubs were abundant three years ago (1915), or where May beetles were numerous last spring (1917), care should be taken in cropping the land,* and it is safer to plant small grain, clover, alfalfa, or buckwheat on ground which was in small grain, timothy, or blue grass last year and to plant corn and potatoes on ground which was in these crops last year.

Corn Root-Aphis.

In certain sections of the white-grub district corn on corn ground, especially if corn has been on the ground for several successive years, is liable to injury by the corn root-aphis, evidence of which is indicated by numerous ant colonies turned up by the plow. Root-aphis injury may be prevented by thorough and continuous cultivation in the spring to destroy the weeds which act as hosts for the aphids previous to corn planting and to demoralize the ant colonies, since the ant is essential to the underground aphid. Full particulars relative to the control of the corn root-aphis is given in Farmers' Bulletin 891 of the United States Department of Agriculture, copies of which may be obtained by addressing the above department at Washington, D. C.

PLANT CORN THAT WINS.

Thorough Seed Testing Is Essential to Victory Crops.

It is generally admitted that more seed corn is dead or of low vitality than has been recently recorded. Corn is the basic crop of the corn-belt States. Seed for replanting will be very scarce, if obtainable at all, and replanted corn always gives an inferior yield.

EVERY dollar that is spent to arm a soldier or a sailor, to feed or clothe one; every dollar that is spent for munitions or cannon, for coal to drive our warships and transport supplies, must come from the Treasury, and the Treasury has no source from which to obtain money except the people of the United States.

Buy Liberty Bonds and furnish the means to arm and feed our soldiers and make them victorious.

The cultivation of empty hills is a serious waste of energy, to say nothing of the loss of the corn. Every good farmer knows that this year it is folly to plant any seed which has not been tested. If of low vitality, every ear should be tested. Testing requires no elaborate equipment or special training. A little care and a few hours work may insure a stand of corn and a normal yield.

Plant None But Thoroughly Tested Seed.

In view of this situation, the United States Department of Agriculture appeals to every corn farmer to plant nothing but thoroughly tested seed. Any neglect to secure the best possible seed can not be atoned for later. Be sure that you have tested seed for your own crop. Do not rely on replanting. Help your neighbors to do likewise. See to it that no one in your community fails to plant tested seed.

If you have not tested your seed corn, or are unable to secure tested seed corn locally, you can secure assistance from your county agricultural agent or your State agricultural college, but the final success of all efforts now being made to secure an adequate supply of seed corn will depend upon the cooperation and effort of individual farmers. Plant only tested seed.

Ordinarily a short crop is the personal loss of the grower, but this year it means also a loss to the Nation and the allied cause. With the planting season commencing, this is the *last call* to those who may not have realized the absolute necessity of tested seed. Planting untested seed corn is to go into battle with uninspected ammunition. Your Government appeals to each member of its agricultural army to make sure that the seed he plants will grow.

STERILIZER FOR DAIRY UTENSILS.

The simple steam sterilizer for dairy utensils developed by the United States Department of Agriculture is meeting with great favor from municipal milk and health authorities. The device has been demonstrated by the health authorities in 172 cities, and 99 officials have written to the department praising the value of the device in improving the local milk supply. Thirty-seven health officers report that the device is being made locally for use by dairymen. Several dairy milk inspectors stated positively that the local milk supply has been improved through the introduction of this device. During the past season the sterilizer was demonstrated to more than 6,000 farmers and was made the subject of a campaign in favor of clean milk utensils that reached thousands of dairy farmers. Twenty-six of the State agricultural colleges secured devices to demonstrate to their short-course students. The device is now being made commercially and can be purchased complete with oil stove for $8.50; or the sterilizer portion alone, which provides apparatus for sterilizing pans, pails, separator parts, small utensils, and strainer cloth, can be purchased for $5.50. Directions for making the home sterilizer are given in Farmer's Bulletin 748, which will be sent free on application to the department.

When contemplating the purchase of a collection of tools, make a careful study to see just what ones are needed, then purchase all at one time, and liberal discount can generally be secured.

Rabbit raising on a back-yard scale is not an experiment. Thousands of small rabbitries in this country are producing meat crops regularly for family tables. These domestic animals are easily raised and remarkably free from disease when properly cared for.

KEPT-OVER VEGETABLES.

Serve the Kinds You Can Procure in Attractive Ways and Bridge the Gap Between Seasons.

In the first spring months before the new gardens are furnishing their plenty the time comes when we long for change and added variety in our meals. We must still depend upon the vegetables that have been kept over the winter, unless we can afford the expensive hothouse vegetables or those shipped from warmer climates. Stop and take an inventory of the vegetables in the farm cellars or that one can still get for a reasonable price upon the market: Turnips, beets, carrots, rutabagas, irish potatoes, salsify, cabbage, onions, brussels sprouts, celery, cauliflower, lettuce, and spinach.

There they are, a good "baker's dozen." Perhaps there are some varieties you have not used often in the winter that your family will welcome for a change. You need vegetables just as much at this time as any other time. Try to serve the kinds you can procure in as attractive ways as possible and bridge the gap between the seasons.

Vegetables Keep Body in Good Condition.

Stop and consider the great value of vegetables in making your diet acceptable and keeping you well before you decide to leave them out of your diet even for a few months.

They furnish some muscle-building material, for nearly all vegetables contain some protein, and they all furnish mineral salts needed to build and repair the body and keep it in good condition.

They are fuel foods. The starch and sugar that vegetables furnish are good for body fuel. One medium-sized potato gives you as much starch as two slices of bread.

They give necessary bulk to your food. The fiber and cellulose that they have helps to prevent constipation.

They give flavor and variety to the diet, which is especially needed to keep the appetite normal.

They furnish other substances not easy to describe, but very important, which are needed by the body for normal growth and to keep its parts working smoothly. This and the supplying of mineral salts is, perhaps, the most important part that vegetables have in the diet, for without vegetables and fruits the diet would lack these substances and also a sufficiency of the minerals that are most needed to build up and keep in repair the skeletal portion of the body and to maintain the alkalinity of the blood. The minerals most needed—iron, lime, magnesium, phosphorus, and potasdium—are supplied in small quantities in most vegetables. If we eat a variety of vegetables we are not apt to lack these essential minerals.

Use Green-Leaf Vegetables.

Don't neglect to use some of the green-leaf vegetables—cabbage, spinach, celery, brussels sprouts, lettuce—for green leaves, besides the valuable mineral matter, are noteworthy because they contain a substance—as yet unnamed—which is also found in butter or cream and which is very necessary for the body.

So, even though you may think you are paying a large price for food that is largely water—for the "juice" of fresh vegetables makes up a great part of their total bulk—don't leave them out of your market order, for they more than pay for themselves in the good effects they have upon your body. Of course, if you have canned vegetables in your cellar, they can be used just as well.

Most all of the vegetables which keep over the winter are best simply cooked, but sometimes a change in the method of preparation makes a dish much more acceptable to the family. Think up new ways to serve your winter vegetables.

Cabbage is often improperly cooked. It does not require long cooking—25 to 35 minutes is sufficient time to allow for the fresh cabbage, although the winter cabbage usually requires longer. Cook it in boiling salted water, to which a small amount of baking soda—an eighth of a level teaspoon to a large head of cabbage—is added. Don't throw away the outside leaves; if shredded they can be cooked and used. Serve buttered or with cream sauce, or sometimes for a change serve with cheese (au gratin). Cabbage, cauliflower, or celery are all good served this way.

Cauliflower with Cheese.

Remove leaves, cut off stalk, and soak 30 minutes (head down) in cold water to cover. Cook (head up) 20 minutes or until soft in boiling, salted water. Drain and place the whole cooked cauliflower, or separated flowerlets, on a dish for serving. Sprinkle with grated cheese, cover with buttered victory bread crumbs, and place on oven grate to brown crumbs; remove from oven and pour 1 cup white sauce around the cauliflower.

Steaming the vegetables instead of boiling them in water saves the valuable mineral matter that is often drained off with the water in which the vegetables are cooked. Some strong-flavored vegetables, such as cabbage or onions, require cooking in a large amount of water to make the flavor milder, but carrots and such sweet-juiced vegetables are better steamed or cooked in as little water as possible.

Often onions are overlooked, except in the capacity of seasoning, yet they are a delicious vegetable.

Scalloped Onion.

Peel and slice large onions in ¼-inch slices and boil until tender. Fill pan with layers of onion and victory bread crumbs, add salt, pepper, and butter. Cover with 1 cup white sauce and sprinkle with buttered crumbs, place on grate in oven to brown crumbs.

NOTE.—One cup of chopped, cooked ham or other meat may be added.

Spinach shrinks so much in cooking that it takes a large quantity to serve a family. If the supply is scanty, try serving it in the form of a loaf.

Spinach Loaf.

Two cups chopped cooked spinach, 4 cups boiled rice, 1 cup white sauce, 1 red, sweet pepper.

Make a thick white sauce from 1 cup skim milk, 3 tablespoons flour, 3 tablespoons fat, and 1 teaspoon salt. Melt fat and mix with flour, add to milk, and stir over fire until thick. Mix with rice, chopped spinach, and pepper. Form into a loaf and bake 20 to 30 minutes.

THE proceeds of the Liberty Loan, including the greater part of that loaned to the allies, are being spent for American products—the products of our factories, our farms, our mines, and other industries. In lending to the United States the people of the United States are lending to their best and largest customer.

BUY LIBERTY BONDS.

BANKS HELP BUY TRACTORS.

Federal reserve banks are to rediscount notes secured by farm tractors, the United States Department of Agriculture announces. Instructions have been issued by the Federal Reserve Board to all Federal reserve banks authorizing them to rediscount tractor paper presented by any member bank, provided it has maturity not exceeding six months and the tractors are purchased for agricultural purposes.

This action of the Federal Reserve Board, explains the department, means that notes given for farm tractors will be treated in the same manner as other agricultural paper, thus making it easier for farmers to obtain tractors where needed.

Boys and girls should be encouraged to start in the poultry business. It requires little money to invest, and the current expenditure may be reduced in part by utilizing farm and home wastes. If the project begins with a laying flock the return begins early, especially by supplementing the food supply of the home.

SWEET-POTATO FLOUR.

Can Be Used to Advantage in Making Cakes and Bread When Mixed with Wheat Flour.

Sweet-potato flour, made in the home by using an ordinary coffee grinder or a meat grinder, offers one practical way to save sweet potatoes from spoiling, according to food specialists of the United States Department of Agriculture. A quart of dried potatoes will make a cup of the flour, or meal, which is useful in making certain hot breads, cakes, and puddings.

To make the flour the potatoes should be cut into small lengthwise pieces and thoroughly dried either in a drier that fits on the top of an oven or warming closet or spread on racks in a current of air from an electric fan. The thoroughly dried potatoes are passed once or twice through a coffee grinder or the nut knife of a food chopper and the product sifted. The flour looks much like fine corn meal, and keeps for some time in a tight container.

In a stove drier potatoes have been dried out satisfactorily in one and one-half days, the drier being over a gas stove used at intervals during the day and unlighted at night. In a warming oven potatoes dry in about two and one-half days, but are of darker color.

How to Use the Flour.

In cake or bread making the sweet-potato flour may take the place of one-half of the flour usually used. In cakes sugar can be reduced a little. As a thickening agent it has the same power as cornstarch.

Recipes.

The recipes which follow have been tested by specialists of the United States Department of Agriculture and found to be excellent.

Sweet-potato Flour Waffles.

1 cup sweet-potato flour.	1 egg.
1 cup white flour.	1 tablespoon melted shortening.
1½ teaspoons salt.	4 teaspoons baking powder.
1¾ cups milk.	

Separate the egg. Beat the yolk and add the milk, melted shortening, and dry ingredients. Then fold in the egg white beaten very light. Bake on hot, well-greased waffle irons until golden brown. Serve at once with butter and sirup. This will fill a waffle iron (for four waffles) six times.

Baking-powder Biscuits with Sweet-potato Flour.

½ cup sweet-potato flour.	½ teaspoon salt.
½ cup white flour.	2 tablespoons shortening.
2 teaspoons baking powder.	⅓ cup milk.

Sift the first four ingredients, rub in shortening with tips of fingers. Make a well in center and mix in slowly the liquid until a soft dough is formed. Toss on a floured board and roll to the thickness of one-half an inch. Cut and bake in a quick oven 20 or 25 minutes.

Doughnuts with Sweet-potato Flour.

½ cup sugar.	½ teaspoon nutmeg.
1¼ tablespoons shortening.	1 teaspoon salt.
1½ eggs.	1¼ cups sweet-potato flour.
½ cup milk.	1¼ cups white flour.
2 teaspoons baking powder.	¼ cup of each kind of flour for rolling.
¼ teaspoon cinnamon.	

Cream butter and add sugar gradually. Beat the eggs well and add to butter mixture. Mix the dry ingredients and add to mixture, with the milk. Knead slightly on well-floured board and roll ¼ inch thick. Cut and fry in deep fat until golden brown. Drain on paper. Cover with powdered sugar. This amount made 28 doughnuts.

Spanish Cakes.

1 cup sugar.	½ teaspoon salt.
1 tablespoon shortening.	¼ teaspoon allspice.
2 eggs.	1 teaspoon cinnamon.
½ cup sour milk.	1 cup sweet-potato flour.
½ teaspoon soda, dissolved in milk.	½ cup white flour.

Mix shortening and sugar. Add well-beaten eggs, then sour milk in which the soda has been dissolved. Sift flour and spices. Beat well and bake in well-greased muffin pans in a moderate oven for 30 minutes. This amount makes 11 cakes.

Cookies.

⅓ cup shortening.	2 teaspoons baking powder.
¾ cup sugar.	½ teaspoon salt.
½ cup milk.	1 egg.
1½ cups white flour.	½ teaspoon vanilla.
½ cup sweet-potato meal.	

Cream shortening, add sugar and cream into the shortening. Add beaten egg, then the milk, and lastly the dry ingredients. Roll, cut, and bake. For drop cookies use equal parts of sweet-potato meal and white flour, making 1 cup of each.

Hermits.

⅓ cup shortening.	Pinch of salt.
¾ cup sugar.	⅓ cup raisins stoned and cut in small pieces.
1 egg.	½ teaspoon cinnamon.
2 tablespoons milk.	¼ teaspoon cloves.
⅞ cup wheat flour.	¼ teaspoon nutmeg.
⅞ cup sweet-potato flour.	
2 teaspoons baking powder.	

Cream the shortening, add sugar gradually, raisins, and egg, well beaten. Mix and sift dry ingredients and add to first mixture. Roll mixture about one-fourth inch thick. Place on greased pan and bake in moderate oven until brown. Bake 20 minutes. Makes 34 hermits.

One-egg Cakes.

¼ cup shortening.	¾ cup white flour.
½ cup sugar.	¾ cup sweet-potato flour.
1 egg.	¼ teaspoon salt.
¾ cup milk.	3 teaspoons baking powder.

Cream shortening, add sugar and well-beaten egg. Mix and sift flour and baking powder and add alternately to first mixture with the milk. Bake in greased muffin tins 30 minutes. Makes 10 cakes.

Sponge Cake.

6 eggs.	½ cup sweet-potato flour.
1 cup sugar.	½ cup white flour.
1 tablespoon lemon juice.	Grated rind of ½ lemon.
¼ teaspoon salt.	

Beat yolks until thick, add sugar gradually and continue beating. Add lemon juice, rind, and white of eggs beaten dry. When whites are partially mixed with yolks, fold in flour and salt. Bake in lightly greased pan 40 minutes in a slow oven.

Sweet-potato Flour Pudding.

1 tablespoon butter (if desired).	3 tablespoons sugar.
1 pint milk.	1 teaspoon vanilla.
⅛ teaspoon salt.	3 tablespoons sweet-potato flour.

For chocolate pudding, add two squares to each pint of milk.

Reserve a portion of the milk and put the remainder in the upper part of the double boiler with the sugar (and chocolate). When the milk is scalding hot (and the chocolate melted), add the sweet-potato flour which has been mixed with the reserved milk. Stir until it thickens, after which cook over boiling water 30 minutes. Add the salt and vanilla. Pour into wet molds, cover with a cloth, and put in a cool place until it is firm. Turn from the mold and serve with cream or fruit juices.

Frozen Pudding.

Use above recipe, adding ¼ teaspoon vanilla, ½ tablespoon sugar, and pinch of salt. Freeze.

The plain cream without the chocolate made with less flour to make a thinner cream is good served with sliced fruit, such as bananas, or as a custard with fruit gelatine pudding.

DO NOT HURRY HENS TO MARKET.

"A rush of too many fowls to market as soon as the restriction against selling laying hens is removed may result in food losses," says the United States Department of Agriculture. "Think twice before selling a hen that is still laying. Green food is becoming more plentiful and the demand for eggs continues. Universal marketing of fowls may react on prices as well as cause spoilage of dressed poultry."

PRESIDENT WILSON looks to the toil, intelligence, energy, foresight, and patriotism of the American farmer to win this war.

BUY LIBERTY BONDS.

COTTON MARKETING.

Influence Exerted Through Organization Will Bring About Betterment and Decrease Losses.

The losses in marketing cotton under the present careless and wasteful methods are indirectly passed back to the farmers, marketing specialists of the United States Department of Agriculture point out. Relief from these conditions must come largely through the actions of the farmers themselves, according to the specialists. In Farmers' Bulletin No. 764, entitled "Cotton Ginning Information for Farmers," direct attention is called to the fact that by local organization and concerted action cotton producers have at hand the forces necessary to remedy conditions.

Improvement of ginning practices would materially better conditions, and through organization the farmers can induce the ginners to adopt better methods of ginning and baling cotton. The present method of ginning seed cotton makes it practically impossible to keep each farmer's seed from being mixed, with the result that there is a general admixture of other varieties or strains, making it practically impossible to maintain the quality of the cotton being grown. Ginners can return to the farmers unmixed or uncontaminated seed by cleaning out all gin heads, bins, and troughs, thereby retaining the purity of the seed.

Attention to Saws.

By giving more attention to the ginning of cotton the ginner will again be able to improve general marketing conditions for farmers. The adoption of 12-inch saws in the place of 10-inch saws will enable the ginner to reduce the speed of the saw shaft, thus reducing in a great measure mechanical difficulties in connection with the operation of his gins. A speed of 333 revolutions per minute on the 12-inch saw, or 400 revolutions per minute on the 10-inch saw, is considered to be good practice. However, some gins have been known to operate at over 500 revolutions per minute, and this results in a positive damage to the fiber, especially if the seed cotton is not thoroughly dry before ginning; hence the need for careful attention to the speed of the saws as well as the careful consideration of the quality and condition of the seed cotton being ginned.

Importance of Compressing.

Finally, the adoption of gin compresses in certain particular communities will have the effect of improving marketing conditions by eliminating certain unnecessary transportation and reducing the demand for freight cars, all of which will result in reducing transportation charges. A direct saving would result by sampling the bales at the press box and compressing at the gin. The bulky, poorly-bound "flat" bale is perhaps one of the greatest sources of loss in marketing cotton, this bale being hard to handle, exposing the cotton to country damage and general deterioration. In order that it may occupy less space in freight cars and ships, it must be shipped to a compress point to be compressed in special cotton presses before being shipped to central or export markets. This compressing is done hurriedly and indifferently. Additional bagging is used to cover sample holes, and the six ties placed on the bale at the gin are now replaced by seven or eight ties. These new ties are not always securely attached, with the result that they become detached, allowing the bale to expand into an unsightly mass and break open, and the cotton reaches its destination in poor condition. The condition of most American cotton on arrival at foreign ports or mills is especially bad, when compared with that of the carefully covered and baled Egyptian and Indian cotton. American bales compressed at the gin, however, arrive in a more satisfactory condition.

It will be of a great advantage to American cotton growers, the specialists point out, if organization can be brought to bear to improve conditions at the gin. When planting seed is unmixed, when lint is carefully ginned, and when bales are properly pressed and bound, American cotton will command greater consideration in both home and foreign markets.

Copies of the bulletin in which these matters are discussed may be obtained free of charge, so long as the supply lasts, by application to the United States Department of Agriculture, Washington, D. C.

THE ANGELUS OF STRIFE.

[By F. Woodruff.]

There's a little town about 60 miles south of Birmingham, on the Louisville & Nashville, called Verbena.

The town is well named.

It is redolent of the old-fashioned southern flower. It is peopled by simple farmer folk. Some substantial citizens of Montgomery keep summer homes there.

There are few sounds about the place. An occasional mule team rattles down a red-clay road drawing an empty wagon to the general stores, or bumps pleasantly back toward the Chilton County hills. Occasionally a gentle wind causes the leaves of the oak trees that shade the town to sigh one of those sighs of content that men breathe after a good meal or a good sermon, or a well-rendered piece of music.

It's as peaceful a place as can be found in Alabama or any other place. It might well have been modeled after Goldsmith's "Sweet Auburn."

But there's a new sound there now.

It is the Angelus of Strife.

It calls the people of Verbena not only to worship but to deeds.

Every afternoon at 6 o'clock the bell of the Verbena church rings. It continues to ring for two minutes, and while its brazen song is lifted the people of Verbena stand and pray.

With heads uncovered and bowed, each man, each woman, each child, each saint, and each sinner repeats these words:

"God bless our President, our soldiers, and the Nation, and guide them on to victory."

When the sound begins, the observance of its call is universal. Men halt in the street; wagons are pulled up on the road; women rise from their knitting or pause in their cookery—for they have early suppers in Verbena—the plowman halts his work, and each repeats the prayer.

Verbena calls it "The Prayer of the Bell," and it is said that men who have never been known to pray before answer its call dutifully.

(From a Birmingham, Ala., paper.)

SHEEP KILLED BY DOGS.

Investigation by the United States Department of Agriculture among sheep owners in 15 States east of the Rocky Mountains shows that out of a total of 6,836,492 sheep in the 502 counties reporting, 34,683 were killed by dogs in one year (1913) and were paid for by the counties. At the same rate of loss in other farm States the total annual destruction of sheep by dogs would be 107,760.

"But these figures are based only upon the number actually paid for, and it is more than probable that the true losses far exceed this," says Farmers' Bulletin 935, "The Sheep-Killing Dog." "It is known that many sheep are killed which are never reported to the county official.

"In 1913 crop reports in 36 farm States submitted estimates which showed that the number of sheep in those States could be increased 150 per cent without displacing other live stock. Such an increase would place approximately 34,000,000 more sheep in these States than there are now. Of 1,411 answers received to the question as to whether sheep raising is profitable in the farm States, 887 answered 'Yes.' Of 894 answers as to the causes preventing increase in the numbers of sheep, 531 said, 'Dogs.' "

Uniform State laws are advocated by the bulletin as being the most effective method of dealing with the sheep-killing dog.

A widespread outbreak of late blight throughout the important potato-producing districts (which, fortunately, rarely occurs except in restricted areas) might diminish potato production at the rate of 3,000,000 bushels a day during August and September if prolonged warm and rainy weather should occur. This disease can be prevented by spraying and early preparation should be made to combat it vigorously.

MUSHROOMS AS FOOD.

These Fungi Are Not a Staple Food or Substitute for Meat—About 90 Per Cent Water.

What is the food value of the mushroom? In spite of assertions by many writers, mushrooms can not be considered a substitute for meat, as many pounds of mushrooms would have to be eaten to equal a single pound of flesh. Chemical analysis, the United States Department of Agriculture points out, shows that mushrooms and other edible fungi contain a very high percentage of water—about 90 per cent. The remaining 10 per cent or so consists very largely of starches or sugars. They contain very little nitrogenous matter and no fat, two of the important food elements in meat. Therefore, instead of being important substitutes for meat, as described in many articles, mushrooms are comparable to such vegetables as carrots or turnips. The butter, cream, eggs, and other materials commonly used in preparing mushroom dishes are of more food value than the mushrooms themselves.

Those who complain that failure to gather wild mushrooms results in the loss of large amounts of food material fail to consider the amount of time and trouble which would have to be devoted to gathering any large amount of these fungi. Mushrooms appear sporadically, and there is no way of telling whether a day spent in searching for them will yield any results.

Careful Observance Necessary.

Amateurs commonly have difficulty in distinguishing between poisonous and edible species and there is absolutely no safe test except the appearance of the mushroom. The collector must be a careful observer, and indiscriminate gathering of wild mushrooms well might lead to serious results. While the Department of Agriculture would not discourage the collection and use of mushrooms by competent persons, it emphasizes that their food importance is more as an entrée than as a staple article of diet. For the reasons stated above the department does not believe that it would be sensible to inaugurate a campaign for the general collection of fungi.

Those interested in mushrooms should apply for Farmers' Bulletin 796, Some Common Edible and Poisonous Mushrooms, which deals with the ordinary varieties. Those wishing more complete knowledge of the subject should secure Department Bulletin 175 from the Superintendent of Documents, Government Printing Office, Washington, D. C.

SELL CHICKENS GRADUALLY.

Don't glut the market with chickens, live or dressed, soon after May 1, when the Federal "closed season" on hens ends. This advice to farmers is given by the United States Department of Agriculture.

"Too many fowls on the market may result in food losses," says the department. Poultry stock should be sold gradually. Farmers will have better markets if they avoid glutting them.

No grain should be allowed to become dead ripe before cutting, because of the tendency to shatter when in that condition.

Cold, damp, poorly lighted and ventilated poultry quarters favor the spread of such diseases as roup. Such contagious diseases as these are difficult and sometimes impossible to control unless given attention in the early stages. Wherever preventive measures fail, separate sick birds from the flock as soon as there is evidence of disease, and then consult expert advice to effect a cure.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, R. A. PEARSON.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. SPILLMAN, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals; and experiments in fur farming.

Office of Public Roads and Rural Engineering, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act.

Division of Publications, JOS. A. ARNOLD, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MAY 1, 1918. No. 39

NITRATE ARRIVING.

Transportation and Distribution Going on Despite Difficulties Due to War Demands.

The work of transporting and distributing to farmers the nitrate purchased by the Government for fertilizer use is proceeding as rapidly as possible, despite unavoidable transportation difficulties due to unexpected war demands for shipping, according to a statement issued by the United States Department of Agriculture.

It was originally comtemplated that the 120,000 tons of 2,000 pounds each of nitrate purchased under the provisions of the food control act would be delivered at Atlantic ports at the rate of something over 20,000 tons per month, beginning in January. At that time it appeared that deliveries could be timed in such a way that all applicants would receive, when needed, practically the full amount of their orders. Unfortunately, on account of unexpected war demands for shipping, it was impossible for the Shipping Board to assign vessels at the rate contemplated. In the circumstances it became necessary for the department to modify its plans of distribution.

Emergency Distributors Appointed.

In order to meet the changed situation, emergency distributors were appointed in the majority of the counties affected to deal with the farmer direct, in order that the nitrate on hand could be furnished to the producer immediately, as far as possible, for his early needs. To date 21,536 tons have been unloaded at Savannah, Charleston, and Wilmington, and of this amount, more than 17,000 tons have actually been shipped to farmers. On account of port conditions the railroads have not yet been able to move approximately 2,822 tons for which shipping instructions have been given. The 2,000 tons remaining on hand will be moved out in the very near future. Two ships carrying approximately 16,000 tons will be discharged this week at Mobile and Norfolk, and five additional ships, with a total tonnage of 26,500, are on their way to Chile for loading, and will discharge the greater part of their cargoes during May. A sixth ship of 7,000 tons net weight has been tentatively assigned for carrying nitrate, making a total of approximately 72,000 tons which have actually been delivered in this country or for which transportation arrangements have been made. The department has assurance that the remainder of the 120,000 tons contracted for will come forward as speedily as possible. Unfortunately the *Kentra*, one of the ships assigned to move agricultural nitrate, was wrecked off the coast of Chile just prior to loading.

Steps Taken to Expedite Shipment.

The unavoidable difficulties encountered, due, as indicated, to unexpected war demands for shipping, have been very great. It is believed, however, that the arrangements which have been made will enable the department substantially to meet the orders received from farmers up to February 4, the date upon which the receipt of applications was closed. In the absence of absolutely unavoidable developments, it is believed that all the nitrate contracted for will be secured. Some of it may not be received in time to be of use this spring, but it is contemplated that the greater portion of it will be delivered to farmers in time to serve their purposes. Any representations to the contrary are unwarranted and misleading. The department has taken every possible step to hasten deliveries from Chile and to expedite the shipment to farmers of nitrate from ports of distribution in the United States.

PRESIDENT WILSON says that measured by the man test, rather than the acre test, the American farmers are the most efficient in the world. They produce less per acre but much more per man. The man test is a better test.

BUY LIBERTY BONDS.

STRAWBERRIES ALL SUMMER.

Strawberries may be produced throughout the summer and autumn months in the northern United States. Plants of the everbearing sorts may be set in the spring and a crop secured in the summer and autumn of the same year. The plants are very hardy, their foliage is very resistant to disease, and under favorable conditions they continue to produce berries until hard frosts occur. These characteristics make them especially suitable for the home garden.

MANY FARM PROBLEMS.

Impossible to Wage War and Conduct Business on Peace Basis, Says Secretary Houston.

Shall men working on farms be prohibited by law from accepting employment in other industries? Should the Government conscript men for farm labor? These and other questions of current interest in relation to the farm-labor problem are discussed in the following correspondence between the Advisory Agricultural Committee of Howard County, Md., and the Secretary of Agriculture:

ELLICOTT CITY, MD., *March 16, 1918.*

To the honorable HERBERT HOOVER,
Food Administrator,
Washington, D. C.

As citizens of the United States and of the State of Maryland, deeply conscious of the responsibility placed upon the officers of our Government as well as on all the citizens of our States and especially the farmer, and desiring to aid in every way possible the officials of our Government in the presecution of the war, we respectfully suggest for your careful consideration the following statement of farm conditions which at present exist in Howard County and the State of Maryland, and we earnestly urge that some at least, if net all, of these suggestions hereinafter made be adopted by the Government, as we feel certain that they will redound to the benefit not only of the farmer but to our Government as well. We find that the following conditions confront the farmers of Maryland to-day:

First. That the Government has drawn largely from our best farm labor for the building of camps and other Government uses, and has offered and is paying such unreasonably high wages for this work that it is largely in excess of that paid for farm labor and more than the farmers of this State can ever hope to pay to keep them on the farm.

Second. That the many industrial plants in this State which are engaged in making munitions and other forms of contracts for the Government, for which they are paid enormous prices, are at this time paying more for unskilled labor than was paid for skilled labor prior to the war, and the farmers of this State can not attempt to compete with these employers for the help which is leaving the

farm and finding work at their places of business.

Third. That the makers of all kinds of farm machinery and the manufacturers of fertilizers and lime have increased their prices so far in excess of their true value and so entirely out of proportion to the prices received by the farmer that the margin of profit left to the farmer has reached its lowest ebb.

Fourth. That the coming draft for soldiers, recently announced, will take from the farms the very best labor we have to-day and on which we rely and depend for successfully operating our farms.

Fifth. That the location in Maryland of the many camps, proving grounds, warehouses, wharves, and places of storage necessary for the Government for prosecution of the war has rendered this State subject to a greater strain for help which in the main is being supplied by the farming communities, so that we venture to assert that no State in the Union has been called upon to furnish a greater number of persons in the many industries connected with the Government, and a survey of this State showing, as it does, almost no plowing done by the farmers last fall, and thousands of acres of corn still in the shock, will furnish the testimony of our crying need for help; and constant advertisements in the papers of our different counties greet our farm labor daily, offering them every inducement, such as shorter hours and greater pay than they are getting, is taking each day the few good help that was left us, and we, therefore, suggest and urgently request:

First. That the men necessary on all Government work and the industries engaged in Government work should be taken from the cities and that no farm help should either be accepted or allowed to work therein, and that all such help therein engaged which came from the farms should be required to return thereto and their places filled by men from the cities whose places could be filled by others.

Second. That the Government should assist the farmers of our State during the coming season by requiring the soldiers from the near-by camps to assist in the planting and harvesting of the crops.

Third. That if it becomes necessary, in filling the quota of the coming draft, to call on the farm labor in furnishing a part of the same that the call not be made until after this year's harvest.

Fourth. That the Government give either to the local draft boards of this county or to some person or persons in each county of the State power to compel all men fitted for farm labor to work on the farm the coming season, and, if necessary, to conscript labor for that purpose, and that the farmer be given military recognition for his service.

Fifth. That the Government shall fix prices for the machinery and fertilizers at which the dealers shall sell same to the farmers.

We are honestly of the firm conviction that unless the Government shall adopt some suggestions such as we have outlined above, that we can not hope to raise even the usual crops this season, and we are as firmly convinced that the ranks of the farm labor, now badly depleted, can not be filled by the Government with help that come from the cities.

ADVISORY AGRICULTURAL COMMITTEE
OF HOWARD COUNTY.

For the committee:

HOWARD MANN.
F. LAWRENCE BAILLIEU.
THOMAS M. JOHNSON.

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, April 13, 1918.

Messrs. HOWARD MANN, F. LAWRENCE BAILLIEU, and THOMAS M. JOHNSON,
Advisory Agricultural Committee of Howard County, Md., Ellicott City, Md.

GENTLEMEN: Mr. Hoover has transmitted to me your letter of March 16, which I have read with interest and sympathy.

Your memorandum makes four suggestions affecting farm labor and one affecting farm machinery and fertilizers. You suggest: First, that the Government secure all its labor for industrial work from the cities; second, that it assist farmers by requiring soldiers in near-by camps to work on the farms during the planting and harvesting seasons; third, that farm labor be not disturbed in filling any quotas during the coming draft; and fourth, that the Government give draft boards or some other persons power to compel men fitted for farm work to work on the farm and, if necessary, to conscript labor. Some of these things neither the Department of Agriculture nor any other branch of the Government has authority to do, nor does it seem likely that any such authority would be conferred. Similar suggestions have been made a number of times and some of them have been opposed by great numbers of people throughout the Nation, such as the suggestion that labor be conscripted for farm work.

The Government, as you know, has been compelled to stimulate the building of cantonments and other military plants to the greatest possible extent in order that we may do our part in the war, and, in view of what is now transpiring on the western front, I think that no citizen would be willing to have the Government delay its operations in the slightest degree.

In the handling of the draft very earnest attention has been given to the necessity of not unduly disturbing necessary farm labor. Skilled farm labor has been given deferred classification, and any further call that may be made this year will be taken from class 1, in which it is estimated there are 2,000,000 men. Skilled farm laborers are not supposed to be in this class. It was intimated some time ago that the call for this year probably [illegible] not [illegible]ed 800,000 men. Whether recent developments will make a call for a larger number imperative, I have no means now of determining, but in any event the War Department has indicated that if there are any necessary farm laborers among the numbers to be called out from class 1, they will be deferred until the last quota, which probably will not be called until after the harvest season. This is in line with your third suggestion.

Furthermore, the War Department has been granted authority to furlough farmers in the National Army for work on their own farms or, in certain instances, on the farms of others, provided the training of the units has reached a point that will permit such action and provided also that the units are not to be immediately moved out of the country for military purposes. Whether any farmers in the National Army will accept such a furlough I am not prepared to say. It certainly would seem unwise and impossible to compel them to work on farms other than their own for farmers who sell their products for their own profit.

Cases have been brought to the attention of the Government where contractors engaged upon Government work have solicited labor in farming regions. This has produced embarrassment and irritation. Steps have been taken to discontinue the practice, and plans are now being formulated to secure labor for such work in ways which it is hoped will make repetitions of such things impossible. The War and Navy Departments, which have immediate direction of these activities, have agreed to the suggestion of the Departments of Agriculture and of Labor that the contractors be directed hereafter not to solicit labor in agricultural regions, but to confine their solicitations to the cities and towns where labor is more plentiful.

There has been a tendency recently for wages in certain lines of industry to increase, but different Government agencies have had the conditions actively in mind. Many difficult and complex situations have been presented. It has been impossible, in the circumstances, to avoid an enhancement of wages in certain directions. I think, on reflection, you will appreciate the difficulty of carrying out the suggestion that the Government undertake to fix wages for one class of labor. In justice, it would have to

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THE greater part of the world now looks to America as its chief hope of safety from tyranny and oppression. Our mission is worth the devotion, the sacrifice, the labor of every American.

BUY LIBERTY BONDS.

enter into the matter of controlling the wages of all classes of labor. Furthermore, if the Government were to undertake, as you suggest, to prohibit the employment in Government work of any labor outside the cities, and if wages should continue to be attractive, the effect would be that men on the farms desiring the higher wages would merely resort to the subterfuge of moving to the towns. If, in that case, the Government should compel men to return to the farms, it would, in common justice, be required to guarantee them the same wages that they would receive in towns.

I realize that, on account of the many military and naval undertakings in Maryland, the drain upon the farms of that State is unusually heavy, and I heartily sympathize with you in the difficulty which confronts you. Similar conditions exist in a few other regions. Under present circumstances, if there are not enough men seeking employment to furnish the farmers with the needed labor in these regions, there are, as I see it, only two practicable remedies at this time. One is for the farmers to readjust their operations in such a way as to use more machinery and less hand labor. The farmers in the region around Norfolk, who heretofore have been engaged principally in the raising of truck crops, this year are reducing their acreage in truck, which requires more labor, and are putting more of their land to corn, peanuts, and other staple crops which require less labor. The other method of relief is to call upon the men of farm experience in the towns and cities adjacent to the agricultural regions to spare some part of their time at the seasons of greatest stress, and to utilize to the fullest possible extent the school boys enlisted in the Boys' Working Reserve. This is not the best farm labor, but when we can not get the best we must take the next best. In many parts of the grain belt last year men of farm experience in the towns and cities helped to harvest the grain; in other places they helped to harvest beets; and in others, apples. I think you will agree that the Nation can not relax its efforts in hastening ship building and supplying munitions, and since these war activities absorb so much labor, and since the farmers are called upon to produce the necessary food supply, it is not too much to ask the towns and cities to give up some of their conveniences and to mobilize their man power for help on the farms. We are doing all that we can to stimulate such action by the towns and cities.

As to the prices of farm machinery and fertilizers, I may call your attention to the fact that the Department of Agriculture, under the President's proclamation of February 25, 1918, issued under the provisions of the food-control act, is licensing manufacturers, producers, and distributors of fertilizers and fertilizer ingredients. In the exercise of this authority every effort will be made to conserve fertilizer materials and to secure as large a supply as possible, as well as to discover where there are such practices or abuses as the licensing section of the food-control act contemplates and gives power to deal with. I am inclosing some newspaper items which further set forth the activities of the department in this direction. You will observe that the fertilizer manufacturers have, at the suggestion of the department, agreed that they will in future sell fertilizers in wholesale lots to farmers or associations of farmers at the same rate given to dealers. You are perhaps aware that, under the provisions of the food-control act, the Department of Agriculture has purchased approximately 100,000 tons of nitrate of soda and is now enagaged in distributing it to farmers for cash at cost as rapidly as it can be transported to this country.

I am inclosing, for your information, copies of the Monthly Crop Report for December, 1917, to March, 1918, which will give you some data regarding the prices of farm machinery and fertilizers, as well as of farm products. From a study of these documents you will observe that the relative prices are not quite as you understand them to be.

IN the organized might of this Republic every American has a place, a station, and a duty. Some fight, others must work, save, and give financial support to the Government.

BUY LIBERTY BONDS.

In conclusion, allow me to suggest that the war presents many problems and requires much readjustment of business industries and activities. It is not possible for us to wage war and at the same time to conduct business upon a peace basis. The farmers of the United States have responded generously to the appeals of the Government, and the Government appreciates their efforts and recognizes their difficulties. There is a lack of understanding of farm problems among a large number of people, but I am glad to observe that, from day to day and from week to week, they are coming more and more to understand conditions, and I am hopeful that as we proceed through the remainder of the crop year the people of the towns and cities, in cooperation with the farmers, will furnish the necessary man power to save the crops that are now being planted.

I realize that, after everything is done, there may be some difficulties that can not be overcome. Last year, however, in spite of all the difficulties, the farmers planted the largest acreages in the history of the country, produced and harvested record crops of most products except wheat, and succeeded in increasing the number of live stock, including not only work animals but milk and meat animals as well. I believe that the farmers of the Nation, by effective organization and application, will, generally speaking, repeat this performance, if they do not better it.

I have tried to indicate how difficult, if not impossible, it is to put into effect some of the recommendations of your committee, at the same time explaining what has already been done and is being done to furnish relief. For the past week there has been in session here a group of representative farmers to the number of 24, assembled from all parts of the United States and from all kinds of agricultural production at the request of the Food Administrator and myself. These gentlemen have made an intimate study of all the pressing problems relating to food production and conservation, and the resolutions giving the results of their deliberations have just been made public. I am inclosing a copy for your information, and I invite your consideration of what they say.

Very truly, yours,

D. F. HOUSTON,
Secretary.

KEEP HENS FOR CHEAP EGGS.

The best opportunity for cheap eggs for city families during the war, says a recent publication of the United States Department of Agriculture, lies in keeping enough hens in the backyard, where they can be supported principally on kitchen wastes, to supply the family table. The keeping of hens in backyards is described as being an economic opportunity for city families and at the same time an essential part of the campaign for increasing poultry production.

The smallest and least favorably situated backyard, says the department, offers opportunity to keep at least enough hens to supply eggs for the household. The number of hens needed for that purpose is twice the number of persons to be supplied. Hence, the smallest flock to be considered consists of 4 hens. Where hens are kept only to furnish eggs for the table no male bird is needed.

A coop for a flock of 4 hens should have a floor area of about 20 square feet, or about 5 feet per hen. For larger flocks the space allowed per bird may be a little less, because the space is used in common, and each bird has the use of all the coop except what her companions actually occupy. For the ordinary flock of 10 to 15 hens the space allowed should be about 4 square feet per hen.

Purity and abundance are the two essentials of water supply. Wells and springs are the usual sources of farm water, but both may easily be contaminated, and the vicinity should therefore be inspected for possible sources of pollution.

HOW TEAMWORK WINS.

Better Understanding Between the Farmer and the Commission Merchant Mutually Beneficial.

Teamwork between the farmer and his agent, the commission merchant, will clear up many a cloud of misunderstanding that frequently results in needless losses for which the middleman is held responsible, says Yearbook Separate No. 736, just published by the United States Department of Agriculture. While the publication admits many striking cases have proven that too often there have been betrayals of trust on the part of city dealers to whom farm products have been consigned, it is doubtful if it could be demonstrated that all the shortcomings of the commission business as now conducted are the fault of the merchant. Marketing farm products through the commission house is a partnership affair, and no partnership can be a complete success unless each partner does his best and is willing to make it possible for the other to work to best advantage.

Unattractive Goods Bring Unsatisfactory Returns.

Too often the commission man is used as a last resort, and products undesirable on the home market, either because of their low grade or because of a weak market, are dumped on the city merchant. Unattractive goods placed on an already overstocked and weak market may bring unsatisfactory returns, no matter how faithfully the commission merchant may work to secure top prices and render an accurate and honest return for the consignment. The publication cites a case where one grower believed that he was not receiving fair play at the hands of the merchant to whom he sent a consignment of select berries, and followed his second shipment to the city. He was able to identify his berries by the stenciled number on each crate, but was astonished to learn that, however fine the berries might be when eaten fresh from the field, they were so soft and tender that they could not reach the market in attractive condition because they were not of a variety suitable for shipment.

Suggestions for Shippers.

For those who contemplate the use of commission men as marketing agents the publication offers the following suggestions:

1. Know your agent. Select one who has a reputation backed by experience, an advantageous location and competent help. A personal visit will help the farmer in deciding these points.

2. Know your market. From your carefully selected agent learn the needs of the market, most desirable varieties to raise, proper containers in which to pack and ship, style of pack most desired, the use of labels or brands, proper amounts and time of shipment, and local preferences.

3. Make regular shipments. Keep your city agent regularly supplied with what his trade will take, thereby helping him to stabilize the business in which you are both concerned.

4. Keep each other informed. Successful shippers make frequent use of the telegraph or long-distance telephone to keep agents posted as to changes in shipments. The agent should also keep the shipper informed as to any changes in requirements of the market.

5. Avoid frequent changes in agents. While it may be wise under certain conditions to check one agent by the sales of another, the most successful consigner is the one who selects an agent with great care and then sticks to him, cooperating in every possible way and carefully scrutinizing all settlements. The honest agent is glad to do his part in such teamwork and welcomes the most exacting examination of his methods.

ARE our hearts with our soldiers? The response to the Third Liberty Loan will be the answer.

BUY LIBERTY BONDS.

PIG CLUBS ADD TO PORK SUPPLY.

The 45,000 members of the boys and girls' pig clubs, says a recent publication of the United States Department of Agriculture, will produce at least 10,000,000 pounds of dressed pork this year, if their work is comparable to those whose members made complete reports last year. This work is judged to be extremely important in meeting the war-time demand for increased food.

The pig-club work has spread rapidly until practically every State is doing more or less of it as a part of the general club work. Twenty-one States have pig-club agents employed in cooperation with the Animal Husbandry Division and the States Relations Service of the United States Department of Agriculture.

In view of the great success attending the work thus far, and because of the great need of increasing the production of pork and pork products, the department is seeking to enroll 200,000 boys and girls as "junior soldiers of the commissary" for 1918. It is expected that every boy who can do so will raise one or more pigs for Uncle Sam and thus furnish the meat supply for a soldier.

Bean losses from anthracnose and other diseases can be prevented to a large extent by the use of disease-free seed.

GRAIN SMUT CONTROL.

Losses in Production of Cereal Crops Prevented by Disinfecting Seed.

Cereal smuts, seen on the grain plant as masses of dark-colored fungous spores, which are individually so small that they can not be seen by the naked eye, extract an enormous toll from grain growers by reducing their crop yields and damaging the grain. Though the kinds of smut are as numerous as the kinds of grain and they differ from each other as essentially as do the different cereals, most of them can readily be prevented by disinfecting the seed, says Farmers' Bulletin No. 939, "Cereal Smuts and the Disinfection of Seed Grain," just issued by the United States Department of Agriculture.

Corn, wheat, rye, barley, oats, sorghum (including kafir and broom corn), and millet are all subject to smut attacks, according to the bulletin. In most kinds of smut the spores (live) pass the winter, in or on the seed where they are at hand to begin growing when it is planted. Effective control, therefore, depends upon the destruction of these spores before the seed is planted. This is successfully done by disinfecting with formaldehyde, copper sulphate (blue stone), or hot water.

Disinfection Methods.

When using formaldehyde the soaking process should be followed in the case of wheat, barley, and sorghums. Sprinkling, or sometimes dipping, is sufficient for treating oats. Copper sulphate is not recommended for general use, particularly with barley and oats, but it has one advantage over formaldehyde in that it prevents to some degree infection of smut from the soil in case the field has been contaminated. Such soil infection does not occur to any noticeable extent, except in the wheat fields of the Pacific Northwest. Seed grain must be limed after treatment with copper sulphate to avoid injury. The hot-water treatment is useful in preventing the loose smuts of barley and wheat which can not be controlled by any other method.

The bulletin recommends that all treated seed be tested for germination, for unless the disinfection is properly done it may be injurious. If the germination test shows that some of the seed has been injured it will be necessary to increase the amount sown. This will result in the best stand of the most vigorous plants obtainable from the seed used. Disinfecting seed grain will prevent certain diseases other than smuts (but not rusts) and thus may increase the yield even more than would be indicated by simply replacing the smutted with sound grain.

LEGHORNS FOR MEAT.

Breeders of This Fowl Should Give Due Attention to Development of Its Table Qualities.

The Leghorn fowl owes its popularity so largely to its egg-producing capacity that the meat possibilities of the breed have been neglected by most Leghorn breeders. Such failure to recognize the potential food value of birds kept to produce a special food product may have been excusable under prewar conditions, but in the present need of utilizing to the full every capacity of every food-producing animal, breeders of Leghorns should give due attention to the development of their table qualities.

Discussion of the meat value of a breed must note and take due account of the fact that the markets—that is, the dealers and consumers—do not recognize breed differences in poultry, except as in a few localities particular breeds may be generally kept and may become known locally, or in special trade lines for excellent table quality. The poultry breeder, therefore, in planning how to make the most of the meat values of his stock considers what market demands can be filled with poultry of the breed which he keeps.

Average Leghorns Too Small.

Average Leghorn hens weigh only about 3 pounds alive. Many of them will dress only 2 to 2½ pounds. This is not a desirable size for a table fowl, being too much under the weights (4 to 5 pounds) which most people prefer when buying a fowl.

Besides being small herself, the average Leghorn hen produces chicks so small that they do not remain very soft meated until they have reached the size the market demands in broilers, and so the cockerels can not be sold for poultry at that stage with the same profit as cockerels from larger stock.

The standard weights for mature Leghorns are: Males 5½ pounds, females 4 pounds. By making these the minimum weights for birds used in breeding, and by giving the preference to the largest specimens that show Leghorn typo without coarseness, strains of Leghorns may be developed that with no loss of laying capacity have considerable merit as table fowls in a limited range of uses.

Leghorn hens which alive weigh 4 pounds or more are heavy enough to meet the demand for dressed fowls a little under the weights generally preferred, and there is enough demand for fowls at this weight to take all the supply.

The cockerels bred from hens of 4 pounds weight and over, if properly grown, will make broiler size as quick'y as the chicks of most of the larger breeds. They will also be soft meated up to about 2 or 2½ pounds weight. After that they are apt to harden quickly and their flesh is not so tender. Leghorn cockerels produced from very large males and females—that is, from males that weigh upward of 6½ pounds and females upward of 5½ pounds—frequently keep quite soft meated until they reach 4 to 5 pounds weight. Such birds make very satisfactory small roasters for home use, though they will not sell as well on the market as birds of the same weight of a slower-growing breed.

Growing Leghorns for Meat.

Even when good-sized Leghorns are used for breeding the chickens will not make good poultry unless they are well grown. In a measure this is true of any chickens; those that are poorly grown never make the development or have the table quality of those that are well grown.

But, the Leghorn breed being at the lower limit of size for good table poultry, and the cockerels having a tendency to become hard meated at an early age, good growth is absolutely essential if passably good table quality is to be secured.

To secure good growth, Leghorn chicks must not be overcrowded in brooders or coops, and as soon as they are large enough to range over an extended piece of ground should be given as wide range as possible and at the same time fed liberally. Chicks so treated will grow twice as fast as those that are reared under the intensive conditions to which the greater number of Leghorn chicks are subjected. They not only grow faster, but continue growing several weeks longer, and make very much larger birds at maturity.

VICTORY does not depend solely on our fighting men; it depends on all Americans. Work, save, and lend to the Government.

BUY LIBERTY BONDS.

G. I. CHRISTIE AN ASSISTANT.

G. I. Christie, director of extension work in Indiana, has been appointed Assistant to the Secretary, effective April 15, 1918. Under the immediate supervision of Assistant Secretary Ousley, Mr. Christie will direct the activities of the department in connection with the farm-labor problem.

Mr. Christie will visit Indiana from time to time as the demands there necessitate, and he will also keep intimately in touch with the work in Indiana through the States Relations Sevice in Washington. There will be no vacation by him of the office of director of extension work in Indiana, and he will resume the duties of that position either when the necessities there require or the emergency here permits.

DESTROY CATTLE LICE.

How To Eradicate This Pest That Causes Injury and Retards Growth of Stock.

Cattle lice are injurious to all classes of cattle, but the greatest losses occur in young stock and poorly nourished old animals. Losses are caused by irritation, digestive disturbances, arrested growth, low vitality, and increased death rate. The methods of preventing these losses and ridding the cattle of lice are described in Farmers' Bulletin 909, "Cattle Lice and How to Eradicate Them," recently published by the United States Department of Agriculture.

Ordinarily lice on cattle are not observed until they become so numerous that they cause unmistakable signs of annoyance. Usually the animals whose lousy condition first attracts attention are the poor, weak, unthrifty members of the herd, and frequently the owner thinks they are lousy because they are unthrifty, whereas the unthrifty condition may be caused by the lice.

Lice-Infested Cattle Can Not Thrive.

Three kinds of lice are commonly found on cattle, and all three species may be present at the same time, but the same method of treatment may be used for any of them. When they make their appearance on the cattle during the fall or winter they usually spread rapidly until every animal is infested. When a herd is grossly infested it is not uncommon to see some animals with large areas of skin partly denuded of hair, and limited areas bruised and raw from rubbing against posts and other objects. Cattle in this condition will not thrive or gain weight normally, and during winter often remain stunted until the old coat of hair is shed in the spring, at which time most of the lice disappear. Hand applications, spraying, and dipping with insecticides are the methods which the bulletin recommends as remedies. In southern latitudes where the winters are mild cattle may be dipped during the winter months without injury from cold weather, but in the northern sections winters are usually too cold for dipping or spraying. All animals in the herd should be treated regardless of the number showing infestation, and the treatment should be repeated in 15 to 16 days.

Effective Homemade Liquid Remedies.

Hand applications are practical only when a few animals are to be treated, but are specially valuable in holding the parasites in check during weather too cold for dipping or spraying. Some dusting powders obtainable on the market are good when this method is used. The following homemade liquid remedies are also effective: Equal

parts cottonseed oil and kerosene, or kerosene and lard mixed in the proportion of one-half pint kerosene to 1 pound of lard or crude petroleum. Apply these remedies with a brush or cloth, covering the entire body, being particularly careful about the head and ears. For spraying and dipping arsenical dips, coal-tar creosote dips, and nicotin solutions are recommended. They may be applied with a hand sprayer, but the most effective method, the bulletin states, is to provide a dipping vat and completely dip the cattle two or, in some cases, three times. Complete directions for making and using a dipping vat are outlined in the bulletin referred to, which may be obtained, so long as the supply lasts, by applying to the Department of Agriculture.

MORE FORAGE CROPS NEEDED.

Department of Agriculture Advises Larger Acreage in Alfalfa and Other Crops.

Increase of forage-crop production can be accomplished by increasing the average yield of alfalfa and other perennial crops and by a larger use of summer annual crops. This advice is being sent by specialists of the United States Department of Agriculture to farmers in Arizona and California, where this year more forage production will be necessary, because as large an acreage as possible will be allowed to mature for grain.

The most desirable annual crops are Sudan grass and sorghum, the specialists point out. Honey sorghum is one of the best varieties for silage or green feed. It yields heavily and is of good quality. Sudan grass will produce a larger amount of good forage under irrigation than any other grass, and as it is an annual it is especially serviceable for quick production. On irrigated land Sudan grass can be sown as late as July 15, but for heavy production planting should be made about April 1. As Sudan grass seed is not always readily obtainable, farmers should make sure at once of the amount they will need.

The normal average yield of alfalfa in the Southwest is considered far below what it should be. Yields from 6 to 8 tons an acre are possible. The surest and quickest way of increasing the average yield of alfalfa is to see that the stands are thickened and maintained. Bare places in fields should be put in condition and reseeded, the best time for this being February or early March. Reseeding for the purpose of thickening thin stands should be done when the old alfalfa plants are making but little growth, which means in the fall or early winter.

The world's call for food this year makes the forage situation of unusual importance. In past years large amounts of grain have been cut for hay, but this plan will be largely abandoned this year so that more mature grain can be produced.

PROFITS IN SHEEP.

High Value of Wool and Mutton Give Boost to Sheep-Raising Business—Low Labor Cost.

High value of wool and mutton will place farm sheep business in a new light, and the continuous development of the industry will contribute materially to the Nation's food and clothing supply. War conditions have brought about a renewed interest in sheep growing in the United States, according to Yearbook Separate, "Sheep and Intensive Farming," a recent publication of the United States Department of Agriculture. Federal statistics show a decline of 8 per cent in the number of sheep kept in this country between 1910 and 1917, but the net result in 1917 is reported to have been an increase of 2 per cent over that of 1916.

The mutton sheep, says the publication, is a necessary instrument in highly intensive and self-supporting agriculture. The still more intensive use of land in farms, an effort to secure the most economical use of every acre, every facility, and available labor, all of which are necessary under the present conditions, necessitate the general inclusion of sheep in our system of mixed farming and live-stock production. This gives the raising of sheep a new appeal in older farming areas.

INDUSTRY, saving, and lending to the Government are national needs and national duties.

BUY LIBERTY BONDS.

Sheep Raising Requires Little Labor.

The main factor in determining the cost of other animal products is the value of grain and mill feeds; pasturage and roughage are important, but both beef and pork require aconsiderable use of concentrated feeds. The production of lamb and mutton require a very much smaller proportion of fat and therefore, a smaller use of grain than is required in these other meat animals. Sheep are able to get a good portion of their feed from rough, permanent grass pasture and at the same time keep it clean of weeds. This increases rather than decreases the cattle-carrying capacity of the pasture. As sheep require comparatively little of the owner's labor, the labor cost per dollar's worth of wool or lambs is lower than in any other farm-animal product. While the labor required in raising sheep is not heavy it is continuous and somewhat different from that required in the care of other stock.

Obstacles Being Overcome.

Many of the obstacles that have hindered the progress of sheep raising in intensive farming districts have been or are being overcome, says the publication. The competition given sheep growing on farms by the production of sheep on lower-priced range land is being removed. A second but only temporary obstacle to a quick increase in sheep production lies in the fact that comparatively few farmers are as well qualified to care for sheep as for other classes of stock. The needs and habits of sheep differ from those of horses, cattle, and swine, but present no problems that will not be met by interested study and observations supported by satisfactory returns.

WEED OUT SLACKER COWS.

Profits Grow Rapidly as Milk Production Increases.

Income from dairy cows advances at a remarkable rate as milk production increases. This is why poor producers should be weeded from the dairy herd, particularly at this time when more milk is needed, when feed is in demand, and when labor is scarce. Tabulations of 5,587 cow testing association records gathered by the United States Department of Agriculture from various parts of the country, covering a period of four years, show that as the average butterfat production increased from 150 to 200 pounds the income over cost of feed advanced from $21 to $34; that is, a gain of 50 pounds, or 33⅓ per cent, in production gave an increased income of 62 per cent over cost of feed. The next gain of 50 pounds raised the income over cost of feed to $50, the next to $63, the next to $74, the next to $87, the next to $100, and the last to $118.

As the butterfat production increased from 150 pounds to 300 pounds, the income over cost of feed advanced from $20 to $63; in other words, as production doubled income over feed cost advanced three times. When the butterfat production increased from 150 pounds to 450 pounds—that is, trebled—the income over cost of feed advanced from $21 to $100, or almost five times as much.

At this rate of increase, when only cost of feed is considered, one cow that produced 450 pounds of butterfat a year would show as much income over cost of feed as 20 cows whose average production was 100 pounds.

A study of the records, says the Department of Agriculture, showed that the cost of roughage was about the same for all the

THE profitable dairy cow helps to feed our armed forces and will help us win the war, but the low-producing, unprofitable scrub is little better than a slacker. The unprofitable cow may enjoy perfect health and have a large appetite; she may even belong to one of the best cow families, but if she is not an economic producer she should be converted into meat.

cows, regardless of production. The cost of grain was considerably higher for the more productive cows than for the low producers, but it was much lower per pound of butter-fat. The increased income, however, though it should be credited in part to better feeding, was evidently due more largely to better cows.

MARKETING CANNED GOODS.

Home and Club Canners Should Plan Marketing of Their Goods in Advance.

Secure orders for canned products before putting them up, says the Bureau of Markets, United States Department of Agriculture, which advises housewives and club members to study their markets at the beginning of the season and pack according to the local demands for different products.

Small lots of nonstandardized products are difficult to sell except among local buyers and are not purchased by the Army, Navy, commercial dealers, or any department of the Government. Many appeals to the Department of Agriculture to find a market for home-canned goods have been made during the past year, and often the canners believed that the Government was in the market for such goods. Subject to whatever regulations may be made by the Federal Government, the marketing of food products will proceed in the usual manner, and the Bureau of Markets points out that proper grading, standardizing, and careful preparation for market are especially necessary in handling canned goods, jams, jellies, and preserves.

The Surplus on the Pantry Shelves.

Home-canned products can be kept over from one season to the next, and those who have not sold their goods have reserves to draw from for their home table. It is good policy, say the specialists, for the housewife to provide a reasonable surplus beyond the probable home consumption for the next crop year.

While the Bureau of Markets is giving aid to producers on marketing problems, it says that it is difficult to place producers of small quantities of different kinds of products in touch with buyers, and urges home and club canners to learn the marketing end of their business just the same as producers in other lines of industry.

Information on marketing canning-club products may be found in Markets Document 5, published by the United States Department of Agriculture.

Poultry is the only class of domestic animal which is suitable for converting the kitchen waste, right where it is produced in the city, into wholesome and nutritious food in the form of eggs and poultry meat.

LICE AND MITES.

They Begin Their Big Spring Drive on Poultry with the Approach of Warm Weather.

Chicken lice and mites get busier than ever with the coming of warm weather. Unless they are controlled at this season they will have a marked effect on the number of eggs produced by laying hens, and the number of chicks raised. Specialists of the Department of Agriculture recommend that houses be thoroughly cleaned, whitewashed, or sprayed with kerosene or kerosene emulsion at this season. The hens should also be provided with a good dust box, and insect powder should be dusted among their feathers.

Mites and Their Control.

Mites usually stay in the cracks of the henhouses and under the roosts in the daytime, where they lay their eggs. At night when the fowls go to roost the mites come out of their hiding places, attach themselves to the fowls, and feed by sucking blood from the birds. To get rid of them the houses should be cleaned and sprayed thoroughly, including the nests, the dropping boards, and roosts. The poultry house that is kept clean and has plenty of sunlight and ventilation is usually free from mites. Immediately after cleaning the house should be whitewashed or sprayed. An effective whitewash is made by slaking one-half peck of lime in 20 gallons of water. Add 1 pound of salt, previously dissolved, and 2 quarts of crude carbolic acid, or 1 gallon of stock dip, and apply the mixture with a spray pump or brush. Kerosene, crude oil, or some wood preservative manufactured from coal tar sprayed about the interior of the house, especially in the cracks and crevices, is an effective means of killing mites. If kerosene is used it is necessary to continue to spray every 10 days or 2 weeks throughout the warm weather. The effect of crude oil or wood preservative is much more lasting.

THE world must be kept fit for free people to live in. A Liberty Bond is a blow for Liberty.

BUY LIBERTY BONDS.

How to Control Lice.

Inasmuch as lice spend a greater part of their time on the fowls, the most effective treatment is that which is applied directly to the birds. The cleanliness of the house, however, is of equal importance if the lice are to be gotten rid of entirely. The two most practical methods of fighting lice are dusting or using a paste or an ointment. Provide a good dust box containing a mixture of road dust or wood ashes and allow the hend to dust themselves. Dusting the hens by hand is effective and is especially recommended for sitting hens and fowls that are very much infested with lice. A good homemade dust or louse powder is made by mixing together 1½ pints of gasoline and 1 pint of crude carbolic acid with 4 quarts of plaster of Paris. Allow it to dry, crush to a powder, and work it well into the feathers by hand.

One of the most effective ointments used to destroy lice is a mixture of equal parts of blue ointment with vaseline or lard. Mix these ingredients thoroughly and apply a small portion (about the size of a pea) to the top of the head, under the wings, and around the vent.

NOTE.—Blue ointment should not be used on hatching hens and small chicks.

NURSERY STOCK IMPORTATION.

Hearing to Discuss Danger of Introducing Insect Pests and Plant Diseases in this Country.

The Secretary of Agriculture has called a public hearing, to be held in Washington May 28, at which will be considered the advisability of restricting the importation of nursery stock and other plants and seeds from all foreign countries. The meeting will be held at 10 a. m., May 28, in room 11, Federal Horticultural Board, Department of Agriculture. Any person interested in the proposed restrictions may be heard either in person or by attorney.

The restrictions are contemplated in order to prevent the introduction into the United States of any tree, plant, or fruit diseases, or of any injurious insects new to or not heretofore prevalent in this country. It is feared that certain injurious plant diseases and insect pests may gain entrance through the agency of ornamental and other plants imported with earth about their roots. There is also said to be special danger from plants imported from little-known countries, because lack of information as to the insect pests or plant diseases of such countries makes it impossible safely to pass such plants by inspection or to safeguard them by disinfection.

Many of the most important injurious insects and plant diseases have been introduced in this country through such importations. On the other hand, there is a long list of similarly destructive insects and diseases which have not yet gained entrance.

A sewer pipe or waste drain near a well is dangerous because such a pipe or drain is seldom water-tight. If a sewer pipe must run near a well, cast-iron pipe should be used.

SWEET-POTATO DISEASES

Sanitary Measures Which May Be Most Effectively Used for Their Control.

The losses of sweet potatoes from disease and decay in storage during this winter have been enormous, particularly in the South. In many sections the supply of sound stock is insufficient to plant the next crop, and the use of diseased sweet potatoes for bedding will involve danger of further losses next year. Sweet-potato growers should therefore begin early to combat the diseases responsible for the destruction of so much of their crop not only for their own financial good but for the welfare of the nation. Careful attention given to sanitation in the bedding of potatoes will accomplish this end. The sanitary measures which may be most effectively used are (1) the careful selection and disinfection of the seed potatoes, (2) care in preparation of the hotbed, and (3) crop rotation.

Seed Selection and Disinfection.

Before the potatoes are bedded they should be carefully picked over, and any with black rot spots and all badly wounded potatoes thrown out.

The sound, healthy potatoes should then be disinfected by immersing for 10 minutes in a solution made by dissolving 1 ounce of mercuric chlorid (bichlorid of mercury) crystals in 8 gallons of water. (Use only wooden receptacles.) *Mercuric chlorid is very poisonous if swallowed, and should be handled accordingly.*

If a large quantity of potatoes are to be treated, about 50 gallons of solution should be made up. After treating 10 bushels in 50 gallons, one-half ounce more of the mercuric chlorid crystals should be added and the water brought up to 50 gallons. Mercuric chlorid will dissolve readily in hot water. The potatoes should be treated just before bedding. Rinsing in water after treatment is not necessary.

If mercuric chlorid can not be obtained, or if for other reasons it is not advisable to use it, the potatoes may be disinfected by immersing for five minutes in a solution of formaldehyde (commercial 40 per cent) made by diluting 1 quart of the formaldehyde with 50 gallons of water. This solution can be used repeatedly without losing strength. The potatoes need not be rinsed, but should be bedded soon after treatment.

Preparation of Hotbed.

If the old hotbed is to be used the dirt should be carted away and replaced by new soil or sand from the woods or elsewhere where sweet potatoes have never been grown. The framework should be disinfected by spraying with a solution of formaldehyde of the strength recommended for the treatment of the potatoes. All decayed sweet potatoes and rubbish likely to harbor the disease germs should be raked up from around the bed and carted off, or preferably burned. Cover the potatoes with soil or sand from the same source as that used in making up the hotbed. If manure is used as a source of heat, be sure that it has not been infected with the disease germs by throwing rotted sweet potatoes on it. If the bed is near the barnyard, fence it in or cover it with chicken wire to keep chickens, dogs, etc., from running over it, since they may carry the disease germs in on their feet.

Crop Rotation.

By carefully following out the above directions, slips free of diseases may be grown, but they may still become diseased if they are planted on ground where diseased sweet potatoes were raised the previous year. It is therefore necessary to plant the slips on new ground or on ground where sweet potatoes have not been grown for several years.

THE purchase of a Liberty Loan Bond is a patriotic duty and a wise provision for the purchaser's own future.

BUY LIBERTY BONDS.

WHEAT-FLOUR SUBSTITUTES.

A Variety of Cereals Recommended for Bread Makers.

Wheat can be conserved in the home without hardship. With abundant crops of other cereals, many of which may enter into bread as a partial substitute for wheat flour, there is no danger of hunger or a lack of bread. Every housewife is urged by the United States Department of Agriculture in Farmers' Bulletin 955 to use some substitute for wheat flour in whatever bread, biscuits, pastry, etc., she prepares, thereby joining the ranks of those who are helping to win the war.

By the use of such substitutes the texture of the bread will not always be so pleasing, the specialists say, and the loaf will usually be smaller. In yeast bread as much as 25 per cent of flour or meal from other grains or from dried peas, beans, potatoes, nuts, etc., may well be used, and as much as 50 per cent in "quick" or hot breads produce articles excellent in flavor and attractive in appearance. Many of these breads will have not only equal but even greater nutritive value than if made from wheat flour alone. In using wheat substitutes locally grown products should be used as far as possible.

THE Liberty Loan is being used not only to win the war but to shorten the war.

BUY LIBERTY BONDS.

It is not necessary to use these substitutes always in the form of flour or meal. The use of boiled or baked potatoes, cornmeal mush, cooked rice, etc., all produce breads which compare well with those made from the corresponding flours or meals. This fact provides the housewife with a good use for left-over food and enables her to prevent waste. Milk, either whole or skimmed, or the whey remaining when cottage cheese is made improves the quality of bread and should be used whenever it is available. Sirup may be used in place of sugar and often improves the flavor of bread.

The bulletin referred to gives complete directions for making bread, biscuits, muffins, cookies, and various kinds of pastry in which wheat-flour substitutes are used.

SAVE MAN POWER.

Now, when saving farm labor is a matter of vital national concern, it is of the utmost importance that the use of large implements be generally adopted by those farmers who are still following the traditional 2-horse method on 3-horse or 5-horse farms. Last year many farmers, speeding up their work by more efficient methods, were able to increase their crop acreage in the face of a decrease in help. This practice must become more general, in the opinion of officials of the United States Department of Agriculture, if production of food is to be increased.

Not many years ago the majority of farmers drove 2-horse teams. This practice is still common in some sections of the country, while in others larger machines and teams of larger size are used. That the latter practice can be increased to the advantage of the farmer as well as to the Nation seems certain. If such practice, desirable at all times, is adopted where present conditions demand, in all probability it will become habitual when normal conditions are restored.

Not only is there a flock of poultry on nearly every farm in the country, but in towns and cities flocks are not rare. With the present high price of eggs even a more general interest should be taken in poultry raising. Too frequently the home flock consists of a mixture of breeds. Pure-bred poultry are more profitable.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MAY 8, 1918. No. 40

SAVE CLOVER SEED.

By Handling the Crop Properly Serious Losses Due to Clover-Flower Midge Can Be Prevented.

In view of the fact that there is a serious shortage of red-clover seed and little immediate prospect of relief through importation, it is of utmost importance that every means be taken to enlarge our domestic supply. This, says the United States Department of Agriculture, can be accomplished in a large measure by controlling during the spring and summer the clover-flower midge, which has long been recognized by clover-seed growers as their most serious pest. The midge is common in the Eastern and Central States, and since 1913 it has made its appearance in the red-clover fields of the Pacific coast.

Feeding Habits of the Midge.

The clover-flower midge, as the name implies, works in the flower, feeding upon those parts which normally would develop into seed. The adult insect is a delicate, mosquitolike fly. It passes the winter as a larva, or maggot, but the first warm days of April bring them from their cocoons, and by the first of May the larger portion of the brood has either begun to transform or is in the pupa stage. Two or three weeks later, depending upon the season, the transformation is complete and the adults emerge. The females proceed to the small green clover heads, going from one to another and laying in all about 100 eggs. When the larvæ, or maggots, hatch they make serious inroads on the clover blossoms, which show the injury very plainly as the petals of the floret rarely expand. Infested heads are irregular or mangy in appearance. There are several broods of this pest each summer.

Effective Control Measures.

While there are a few natural enemies to the clover-flower midge they can not be depended upon to control it. Control measures consist in keeping the blossoms from forming during the early part of the summer or before the seed crop is made. The practice of pasturing clover during April and May, or previous to starting the seed crop, has proven to be a very effective means of midge control. This results in direct destruction of the clover heads containing the eggs and partially grown larvæ, or indirectly by preventing the heads from forming during the time the adults of the spring generation are laying their eggs. In case the pasturing has not been close enough to get all the heads, a mower should be run over the fields shortly after the stock is removed in order to cut what remains.

Another control measure consists in cutting the crop early for hay. To practice this effectively the farmer must keep himself informed not only as to the development of the clover itself but also as to the development of the midge larvæ within the heads. A good rule to follow is to cut the hay crop during the first week in June, providing the weather is favorable. If it is rainy at that time, wait and cut the crop as soon as the sky clears and the weather becomes settled. Clipping the clover back between the 10th and 25th of May has also been practiced with success. Some farmers who combine clover-seed production with dairying find it desirable to cut their clover and feed it green during the spring and summer. This practice affords an effective means of controlling the midge, providing the same precaution is taken as in clipping; that is, that the clover be held back sufficiently to prevent young heads of the seed crop from developing before the middle of June.

EAT POTATOES—CARLOADS.

Not freight car, necessarily, but motor car. When you drive into the country—you who live in potato sections—bring back a sack or two in your car. Then eat them, many ways, every day, several times a day. Not an idea that will save the country, but it will help save the big food reserve that will soon begin to sprout if it isn't eaten.

Let this fact sink in deep: Unless we increase our consumption of potatoes markedly within the next few weeks, says the Department of Agriculture, there will be a loss of much wheat-replacing food. If that happens, farmers may think we don't want so many potatoes and not grow enough this year. Americans ought not to allow that sort of food disaster to occur.

HOW TO DEHORN CATTLE.

Operation Is Simple and Easy When Performed on Calves Four to Ten Days Old.

Dehorning cattle is almost universally practiced by stockmen who raise high-grade steers. Cattle without horns, says a publication of the United States Department of Agriculture, are easier to handle, have an equal chance at the feed trough when placed in the feed lots, are less dangerous to attendants, and are more uniform in appearance. Also, they can not gore one another in the feed lot or in transit to market, which causes greater shrinkage in weight, injures the skin for commercial purposes, and leaves the flesh in a bruised condition, thus detracting from its value.

A Simple Method.

While there are many cruel ways of performing this operation, according to the Department of Agriculture, one of the simplest and easiest methods is to use caustic, either soda or potash, on the undeveloped horns of the calves. To obtain the best results, the caustic should be applied when the calf is from 4 to 10 days old. Clip the hair from around the knobs where the horns are developing. With a slightly moistened stick of caustic, rub each horn alternately three or four times, allowing it to dry each time before applying the next. Extreme care should be taken not to have the stick so wet that the solution from it will run down the side of the calf's head. To prevent the spread of the caustic, which will cause sores on the skin, apply vaseline around the edge where the hair has been clipped.

For older cattle, where the horns have developed, either saws or clippers should be used. It is best to use the clippers on the young animals when the horns are still soft and tender, but with older animals which have hard, brittle horns the saw should be used. While the operation can be performed with clippers quicker and with less pain, this instrument is liable to crush the bone in older animals, causing a wound that heals very slowly.

Time to Perform the Operation.

Cattle should never be dehorned during warm weather, spring being the best time

to perform the operation. If delayed too long in the season, the wound may become infested with screw worms, and flies are very annoying. Either coal tar or pine tar applied to the wound will prevent fly injury. If screw worms appear in spite of all precautions, they may be removed by saturating a piece of absorbent cotton in chloroform and inserting it into the wound, or by pouring gasoline into the horn cavities. This kills the worms, which should then be removed with a pair of forceps.

In order to make a clean cut and avoid trouble in performing the operation, the animal's head should be clapped or held in a firm position. For this purpose dehorning chutes, the front of which consists of two strong pieces which can be closed firmly on either side of the cow's neck, are very convenient. Complete details for constructing dehorning chutes are described in the bulletin.

RUST-RESISTANT OATS.

Experiments May Aid Development of Strains Unaffected By Serious Widespread Disease.

Varieties of oats showing unquestionable resistance to both the important rusts of this crop in the United States—stem rust in the North and crown rust, most abundant in the South—have resulted from recent greenhouse experiments made by a specialist of the United States Department of Agriculture. Two varieties—White Tartarian and Ruakura Rustproof—were notably resistant to stem rust, while several varieties of the red-oat group, including certain strains of Burt, Cook, Appler, Italian Rustproof, Red Rustproof, and Turkish Rustproof, were very resistant to the crown rust. Ruakura Rustproof and certain recently introduced species of Avena also gave indications of resistance to crown rust. A recent publication of the department, Bulletin 629, reports the results of the test in which plants of more than 120 strains were inoculated with the rusts at two different periods of growth—the seedling stage and the heading stage—and their reaction to both rusts determined.

Strains Susceptible to Both Rusts.

Eighty of the strains were found to be entirely susceptible to both rusts at both stages of growth. Rust resistance was shown to be specific, for many varieties which are resistant to crown rust are thoroughly susceptible to the other under identical conditions. Varieties of the red-oat group which are resistant to the crown rust, if found to be high in yield, should replace other rustproof varieties now being grown in the Southern States, the specialist believes. None of the varieties of this group which have been tested will withstand the attacks of stem rust. A basis now is offered, the specialist believes, for making selections and crosses to produce improved varieties resistant to crown rust and suitable for culture in the several oat-growing areas in the United States. While it is believed that the greenhouse tests just made contributed valuable information, the specialist points out that such studies need to be supplemented by nursery and field trials.

BY-LAWS IMPORTANT.

Suggestions for Forming Successful Cooperative Associations of Farmers.

Cooperative associations to be successful should have a definite plan of action mapped out by the founders before the organization engages in business. The by-laws of an organization should supply it with such a working plan, and this fact emphasizes the importance of having a complete set of by-laws which have been prepared with the greatest care. As the plans and specifications of a proposed building are to the finished structure, so are the by-laws to the organization. In department Bulletin 541, recently issued by the United States Department of Agriculture, some valuable suggestions are given on organizing cooperative associations. The publication includes a set of by-laws, with explanatory notes, which will be found helpful when used as a basis for preparing by-laws to suit local or particular needs of farm organizations.

Special reference is given to section 6 of the Clayton Act, which is of particular interest to farmers' cooperative associations, because associations which comply with its requirements are not within the prohibitions of the Sherman antitrust law. The publication points out that in order to get the benefits of the section an association must be first a "labor, agricultural, or horticultural organization"; second, it must be "instituted for the purpose of mutual help"; third, it must be formed without "capital stock"; and, fourth, it must not be "conducted for profit."

State Laws Influence By-Laws.

While the general plan of the by-laws may be the same in all cases, local conditions will make changes in details necessary, says the publication. The State law under which the organization is to be incorporated influences the character of the by-laws. It is advisable for all organizations to incorporate, as this gives a distinct legal status which can not be obtained otherwise.

The suggested form of by-laws presented in the bulletin provides for cooperative, nonprofit, marketing associations without capital stock. Suggested articles to make the by-laws suitable for organizations formed on the capital-stock plan are also included. Explanatory notes which explain the purpose and importance of various points covered are inserted for the information and guidance of organizations in adopting the by-laws.

QUARANTINE LIFTED.

An order signed by the Secretary of Agriculture, D. F. Houston, provided that on April 15, 1918, quarantines against cattle scabies in Bailey, Castro, Cochran, and Lamb Counties in Texas should be lifted.

After this release of territory no Federal quarantine against this cattle disease will exist in the United States. The order does not mean that the disease has been entirely eradicated from American territory, but it does mean that the infection has been reduced to such an extent that it can be handled effectively by the cooperation of Federal, State, and local officials.

In 1905, when the Federal fight against cattle scabies was begun, 1,285,009 square miles in Colorado, Kansas, New Mexico, Nebraska, North Dakota, Montana, Oklahoma, South Dakota, Texas, and Wyoming were under quarantine. The disease weakens cattle and reduces their flesh and causes some of them to die.

Another order signed by the Secretary of Agriculture provided that on April 15 Federal quarantines against sheep scabies should be removed from 136 counties in Texas, with an area of 118,033 square miles. The area remaining under quarantine for this disease includes 56,769 square miles in California, Louisiana, and Texas.

EQUIPMENT BIG FACTOR.

Besides the saving in farm labor due to the use of large-sized teams and equipment, there is the gain, sometimes very great, due to being enabled to cover more acres per day, both in the preparation of the soil for planting and in the harvesting of the crops. The difference of a few days during unfavorable weather is often the deciding factor between a good crop and a poor crop. The farmer does not need to be told that the seasons for many farm operations are exceedingly short, particularly in the Northern States, and that the successful farmer is the one who is prepared to make the best possible use of the time when it is ripe. The maximum use of teams and of labor is a big factor in attaining this end.

The farmers of one Massachusetts county, through an arrangement by the Farm Bureau, have been furnishing large quantities of fresh vegetables direct to near-by military camps. Through the efforts of the same organization, the farmers were able to secure manure from the camps.

CLOVER IN ROTATION.

Increased Crop Yields Result from Introduction of Legume in Northwestern States.

Clover introduced into the rotation of crops on farms in eastern Washington, eastern Oregon, and northern Idaho, where there is an annual rainfall of more than 20 inches, increased the per acre yield of crops, did away with summer fallow without decreasing yields, and resulted in materially increasing farm profits. The farm survey conducted by the United States Department of Agriculture in 1915 on 246 farms in a representative portion of this area showed that 30.2 per cent of the rotation area was idle each season as summer fallow. It was generally believed that the practice of summer fallowing was largely responsible for a gradual reduction in yield of grain and the growing compact condition of the soil. It was found that farms having the most summer fallow made the least profit, while those having the largest per acre yield of crops made the largest profits. The department therefore conducted a study to find cropping systems that would reduce summer fallowing without decreasing crop yields. The report of this study has just been published as Department Bulletin No. 625.

Clover Proves Successful.

The studies show that on farms where clover has been grown in crop rotation the per acre yield of crops was from 15 to 25 per cent greater than on farms where the summer-fallowing method of growing wheat, oats, or barley was practiced. Farms in this section did not grow clover in a large measure because of the prevailing idea that it could not be seeded in a nurse crop. In 100 trials of this method of seeding clover, covering a period of 11 years, where 1,507 acres of land were seeded to clover with wheat, oats, or barley, a good stand of clover was secured on 1,408 acres, or 93.8 per cent of the total acreage seeded.

In the successful seeding of clover with a nurse crop, the bulletin says, the following rules must be observed: Use good seed; see that the land is free from weeds, especially wild oats; prepare a good seed bed; use about two-thirds as much grain (nurse crop) per acre as when no clover is sown; seed early in the spring; inoculate the soil with nitrogen-gathering bacteria, which will grow on the clover plant. When clover is seeded in the spring with winter wheat from 8 to 10 pounds of seed per acre are sown and harrowed in before the grain starts growing. If the nurse crop is to be spring grain, the ground should be plowed in the fall or very early spring and worked into a mellow, shallow seed bed. The clover seed may be sown broadcast after the nurse crop, or the usual method is to sow the grain and clover at one operation, using a grain drill having a grass-seed attachment.

Crop Rotations Recommended.

The bulletin recommends the following crop rotations:

(1) First year—spring wheat, oats, barley, or field peas (the grain is seeded as a nurse crop with clover); second year—clover for hay, seed, or pasture; third year—spring wheat, oats, barley, or field peas. This rotation is for the farmer who does not wish to grow intertilled crops.

(2) First year—corn, beans, potatoes, or field peas planted in rows and intertilled; second year—winter wheat, spring wheat, oats, barley, or field peas (grain is seeded as a nurse crop with clover); third year—clover for hay, seed, or pasture.

(3) First year—corn, beans, potatoes, or field peas planted in rows and cultivated; second year—winter wheat, spring wheat, oats, barley, or field peas; third year—spring wheat, oats, barley, or field peas (grain seeded as a nurse crop with clover); fourth year—clover for hay, seed, or pasture.

Clover sod should be plowed in the fall or winter, as in the spring the growing clover soon dries out the land to such an extent as to make it a mass of clods when broken.

MORE FORAGE CROPS NEEDED.

Department of Agriculture Advises More Acreage in Alfalfa and Other Crops.

Increase of forage crop production can be accomplished by increasing the average yield of alfalfa and other perennial crops and a larger use of summer annual crops. This advice is being sent by specialists of the United States Department of Agriculture to farmers in the regions affected.

The most desirable annual crops are Sudan grass and sorghum, the specialists point out. Honey sorghum is one of the best varieties for silage or green feed. It yields heavily and is of good quality. Sudan grass will produce a larger amount of good forage under irrigation than any other grass, and as it is an annual it is especially serviceable for quick production. On irrigated land Sudan grass can be sown as late as July 15, but for heavy production planting should be made about April 1. As Sudan grass seed is not always readily obtainable farmers should make sure at once of the amount they will need.

The normal average yield of alfalfa in the Southwest is considered far below what it should be. Yields from 6 to 8 tons an acre are possible. The surest and quickest way of increasing the average yield of alfalfa is to see that the stands are thickened and maintained. Bare places in fields should be put in condition and reseeded, the best time for this being February or early March. Reseeding for the purpose of thickening thin stands should be done when the old alfalfa plants are making but little growth, which means in the fall or early winter.

The world's call for food this year makes the forage situation of unusual importance. In past years large amounts of grain have been cut for hay, but this plan will be largely abandoned this year so that more mature grain can be produced.

DO NOT PERPETUATE TICKS.

Cattle Fever Can Be Eradicated from Sections in which Deer Are Found.

The presence of deer in regions where campaigns to eradicate the cattle fever tick are being carried on does not prejudice the campaign and the parasite can be successfully and permanently banished. This is the conclusion of officials of the United States Department of Agriculture. In California, where deer are numerous in formerly tick-infested regions, the parasite has been eradicated.

"Deer were known to be plentiful on many of the large California ranches that were tick-infested," said one of the Federal inspectors now working in Southern States, "and deer killed on these ranches were often found infested.

"It was our experience in California that as soon as the cattle tick was eradicated from cattle the deer in that section were no longer found tick-infested. This seems to justify the theory that, as the deer is not the natural host of the fever tick, deer which do become infested with cattle ticks are infested by seed ticks, which are the progeny of ticks developed on cattle."

The Department of Agriculture has received written statements from California cattle owners and the State veterinarian of California saying that, despite the deer, the ranches from which the parasite was eradicated have remained free of ticks. The State veterinarian wrote:

"If any cattle owner is willing and anxious to free his range of cattle ticks, deer or anything else will not stand in the way of this being accomplished if he will explicitly follow the directions of officials in charge of this work."

Even as few hens as six or eight should produce eggs enough, where used economically, for a family of four or five persons throughout the entire year, except during the molting period of the fall and early winter.

IRRIGATION IN EAST.

Surface Method Best Suited for Average Conditions on Farms of Eastern States.

An irrigating system on many of the farms of the Eastern States would be a profitable investment. Such a system is an insurance against summer drought, for timely irrigation during the dry spells may save a crop or greatly increase its yield.

Of the three methods of irrigation, spray, subirrigation, and surface, the last named seems to be the best suited for the average eastern farm. This is the opinion of irrigation engineers of the United States Department of Agriculture, who have made a study of the situation. The surface method is simple and inexpensive, and is commonly used in the arid regions of the West. It consists of merely running the water over the surface of the soil either in small open ditches or furrows between the rows of plants, or flooding the fields, the latter method being limited to small grain, alfalfa, or grass. The management of an irrigating system suitable for eastern farms, including the pumping plant and costs, are outlined in Farmers' Bulletin 899, "Surface Irrigation for Eastern Farms," recently published by the United States Department of Agriculture.

Cost of Installing System.

When the spray system is used the water is carried under pressure in pipes and applied to the crops in a fine spray. The cost of installing this system, which ranges from $150 to $200 per acre, limits its practicability to small areas where highly intensive farming or market gardening is practiced, and sure markets and the ability to produce and handle a high-grade crop is assured. It has the advantage over the surface method of uniformity of distributing water, and that it requires considerable less labor to operate.

The subirrigating method consists of a system of tile laid under the ground through which the water is distributed. In addition to being costly, it is successful only under certain soil conditions—a combination of an open porous surface soil, underlain with an impervious stratum which will tend to hold the water within reach of the plant roots.

Success Depends on Slope of Land.

The slope of the land must be fairly uniform if surface irrigation is to be successful, for the flow of the water depends on gravity. The source of water must be near enough to the land to justify the expense of a pipe or a ditch to convey it to the fields. With few exceptions a pumping outfit is necessary for the eastern farm. Usually it does not pay to pump water through a vertical lift of more than 100 feet for ordinary field crops, although valuable truck crops may justify a lift of over 200 feet. Where water is pumped from streams or other open bodies of water, a centrifugal pump usually is the cheapest and best type. Its advantages are low cost, light weight, lack of valves, and parts that wear out easily, comparative ease of operation and maintenance, and relative high efficiency in raising large quantities of water through moderate lifts. The water may be pumped to a reservoir on the highest part of the farm or direct to the field through pipes. The plan most commonly used is to pipe the water to the highest parts of the field and then distribute it either by the use of portable pipes or hose or run the water directly from suitable outlets to the furrows previously prepared in the field.

ORDER FARM MACHINERY EARLY.

Recent reports from the implement dealers in the Northwest to the United States Department of Agriculture show that there is a vital necessity for farmers ordering their agricultural implements very early this year. The factories have plenty of farm machinery, but they hesitate in distributing it to their transfer houses at various points in the Northwest until they have some idea of the amount of business. If the orders for implements are sent in late there is likely to be congestion of traffic and great delay in seeding, and also again in the fall at threshing time, when it would be a very serious matter if there was any delay in the delivery of harvesting machinery.

Under normal conditions it takes several weeks, and sometimes months, to obtain farm implements from the factories. The machinery is delayed at terminal and transfer points and also in the handling and assembling at destination.

To alleviate these conditions, which are likely to be aggravated this year, it is well for farmers to inform their dealers at the earliest possible moment what they desire in the line of farm machinery during the 1918 crop season. This will facilitate the movement on the railroads as well as enable the implement dealers to place orders for ample supplies. Not a grain of foodstuffs should be lost this year on account of the imperative need of the allies and ourselves, and it is a patriotic duty of every citizen to do all he can to encourage the ordering of farm implements as early as possible.

Surplus sweet corn, if cut at the proper stage, can be sun dried or oven dried, as in earlier years before systematic canning of corn was developed, and in this way be preserved for food use.

COMMERCIAL APPLES.

Geographic Distribution and Commercial Importance of Many of the Leading Varieties.

Among the varieties of commercial apples, the Baldwin leads in production, according to a nation-wide survey recently completed by the United States Department of Agriculture. It constitutes one-half of the barreled crop of New England and New York and one-fourth of the crop of western Michigan, all regions of large apple production.

Ben Davis, Gano, and Black Ben have the widest geographic distribution. Prominent centers of Ben Davis production are in the Shenandoah-Cumberland region, including parts of Virginia, West Virginia, Maryland, and Pennsylvania; it leads in Missouri, Illinois, the Ozarks, and the Missouri River and Mississippi River apple regions; and it ranks high in production in the West, particularly in Colorado, Utah, and Washington. Gano and Black Ben are grown more extensively in the West than in the Middle West and East.

Commercial Importance of Winesap.

Winesap follows Ben Davis in commercial importance, and this is particularly great in the Yakima and Wenatchee Valleys in Washington. In the Piedmont district of Virginia, Winesap is the leading apple variety, and it has considerable commercial importance in the Arkansas and Missouri River valleys and in parts of Illinois.

The Jonathan is the leading variety in Colorado and Idaho, and is important in Washington, Oregon, Utah, and New Mexico. Its orchards are widespread at the junction of Iowa, Missouri, Nebraska, and Kansas, and are common in Illinois, the Ozarks, and the Ohio River region, and its production is increasing in some parts of the East.

York Imperial is the leading commercial apple of the Shenandoah-Cumberland region, a region that ranks next to New York in the production of barreled apples. The normal apple production of this region is 3,500,000 barrels, of which Yorks are two-fifths. The Ohio River section and Missouri also produce considerable quantities of this variety.

The Northern Spy was regarded as the third apple variety in order of commercial production until recent years, and now it is probably the seventh. The commercial crop comes mostly from Michigan, New York, and Vermont. Close to Northern Spy is Yellow Newtown, or Albemarle Pippin. Its leading district is the Pajaro Valley, Cal., where 1,000,000 boxes were produced in 1916 within a radius of 15 miles from

Watsonville. Following California in order of production is Oregon, where the Yellow Newtown districts are the Hood River and Rogue River valleys. Washington is third in order and Virginia fourth.

Other Important Varieties.

Apple varieties that are certainly increasing in commercial importance in the United States are Jonathan, Stayman, Delicious, Winesap, Rome Beauty, York Imperial, Duchess, Grimes Golden, McIntosh, Wealthy, Transparent, Black Twig, Williams Early Red, Arkansas Black, and Yates. A stationary production is held by Baldwin, Rhode Island Greening, Yellow Newtown, Gravenstein, White Winter Pearmain, Northwest Greening, Gano, Wagener, Maiden Blush, Benoni, Bonum, Nero, and Starr.

For one reason and another many apple varieties are declining in production. Among them are widely known kinds, such as Ben Davis, Northern Spy, Esopus Spitzenburg, Tompkins King, all kinds of Russet, Hubbardston, Missouri Pippin, Tolman Sweet, Smith Cider, Fameuse or Snow, Yellow Bellflower, Twenty Ounce, Rambo, Swaar, Red Canada, Wolf River, Fall Pippin, and other commercial varieties. And to this list would be added many noncommercial ones.

MORE WOOL USED IN MARCH.

Manufacturers in the United States used more wool in March than in January or February of this year, according to the monthly wool-consumption report issued recently by the Bureau of Markets, United States Department of Agriculture. The report shows a total of about 71,900,000 pounds of wool, grease equivalent, consumed in March, compared to 63,700,000 pounds in February and 65,100,000 pounds in January, 1918.

Stocks of wool consumed in March by classes were: Grease wool, 43,949,782 pounds; scoured, 12,207,643; and pulled, 2,720,722. Consumption, by States, for all classes of wool were: Massachusetts, 25,694,673 pounds; Pennsylvania, 7,293,901; Rhode Island, 7,117,777; New Jersey, 6,893,794; New York, 3,239,346; New Hampshire, 2,046,424; Connecticut, 1,880,803; Ohio, 1,365,947; and Maine, 1,028,348. All other States reported a total of 2,317,140 pounds consumed. These State totals, it is pointed out, represent an increase in each case over the State totals for February, 1918.

Reports were received from 582 manufacturers out of a total of 590, 57 reporting no wool consumed in March, while 1 report was received too late to be included in the report.

EAT MORE RICE.

This Highly Nutritious Food Should Have a More Important Place in the Nation's Diet.

Rice should have a more important place in the diet, says the United States Department of Agriculture in one of a series of statements reviewing the agricultural situation for 1918. Increased production and consumption of rice not only would expand a profitable industry, but the eating of more rice in the place of wheat would release a greater quantity of the bread grain for shipment to the allies.

The average per capita consumption of 6 pounds per year in the United States is smaller than that of many European countries where rice is not even produced. Norway and Sweden consume over 9 pounds per capita, Russia over 11 pounds, England 27 pounds, France 34 pounds, Italy over 101 pounds, and Germany more than 93 pounds. But even these European countries do not begin to eat as much rice as Japan and China. In these eastern countries rice is the most important article of diet. Every man, woman, and child in Japan, on the average, consumes 147 pounds of rice each year, and those in China 158 pounds.

Rice Highly Nutritious.

The importance of the place rice holds in the diets of foreign countries as a staple food, says a recent statement of the department, would prove beyond doubt that it is highly nutritious; an analysis of rice supports this proof. Pound for pound, rice is about as nutritious as wheat. Every hundred pounds of cleaned rice contain 87.7 pounds of nutriment, while every hundred pounds of wheat contain 87.1 pounds. Wheat has the advantage in protein and rice in carbohydrates.

Most of the American per capita consumption of 6 pounds per year is used in the Southern States, in some of which it is on the table with at least one meal daily. In these States it holds the same place in the dietary that the potato does in the Northern States.

Rice as sold by most American grocers is a pretty grain, with a smooth and shiny surface, attractive to the eye, bnt it lacks the palatableness that makes foods popular. This rice has been so highly milled that it has been robbed of mush of its food value and of most of its oily flavoring matter, leaving a product known to the trade as polished rice, which to many persons is tasteless. Unpolished rice is offered and accepted as a product superior to the polished rice, but in reality its food value is only better in a hardly perceptible degree.

Brown Rice Superior.

If the American housewife could be induced to demand brown rice instead of taking the polished product, there would be a marked increase in the consumption of this cereal in a short time, the department says. The superiority of the brown rice and its pleasing flavor, compared to both the polished and the unpolished rice, lie in the fact that the entire seed, as nature produced it, is used, only the inclosing chaff or hulls being removed.

In the preparation of rice, the housewife is advised to take care that it does not become an uninviting, glutinous mass, which has been its common table form in this country. In certain sections of the Southern States rice is served with each grain distinct and separate, making a tempting and appetizing dish.

How to Cook Rice.

In seeking information on the art of cooking rice, says the department, no mistake is made in referring to South Carolina, where the true value of this cereal has been appreciated for over two centuries. A Carolina housewife would advise the using of 1 pint of rice, after thorough washing, which she considers important, "to a quart and a pint of water," and a teaspoonful of common salt.

"This is to be boiled over a quick fire for 10 minutes, stirring occasionally. Then pour off all or nearly all the water; cover the vessel and put over a very slow fire and allow it to steam for 15 minutes at least, stirring occasionally. The rice will be soft or grainy, according to the quantity of water left on it when put to steam and the length of time allowed in the steaming. The larger the quantity of water and the shorter the steaming, the softer will be the rice."

Of course, other methods are used in boiling rice, or at least modifications of the recipe given, but it must be remembered that the results should not be a glutinous mass, and that success depends upon the proper amount of water used and the length of time in steaming.

Much milk is lost in the process of handling in milk plants, says the annual report of the Bureau of Animal Industry, United States Department of Agriculture. Economies effected in that particular by one plant caused a yearly saving of $2,836. Simple methods of checking milk bottles, often an important item of loss, and a simplified system of accounting, have been worked out and put into successful operation in a number of milk plants by the bureau's investigators of milk-plant management.

POTATOES BACK WHEAT.

Potatoes Can Hold the Line—Eat Lots of Them, Then Your Wheat Needs Become Less.

It's time to call out the potato reserve—in full force, says the United States Department of Agriculture. Wheat must have this support to last through till the next harvest. There are still millions of bushels of that 442,536,000-bushel record crop of potatoes we grew last year. Potatoes can hold the line; they are made of the right stuff—much the same stuff as wheat. They do much the same work as wheat in the body. They are plentiful and are getting cheaper. Eat lots of them; then your wheat needs become less.

Many New Uses for Potatoes.

There are almost endless ways to serve potatoes with meat and other foods. Soups, salads, and even deserts offer still other ways. Mixed with flour they can be used in baking too. That we can use potato with flour is not surprising, for the food substance potato supplies most abundantly is starch, and it is largely because of the starch they contain that the world uses cereal grains as breadstuffs. Food specialists of the department declare that with a little experimenting housewives will find that one-third to one-half of the flour in some favorite recipe can be replaced with mashed potato. Here are some new ways suggested by Department of Agriculture specialists to make potatoes take wheat's place:

Yeast Bread.

If potato is used for bread making, allowance must be made for the large amount of water in it, and less additional liquid used for this reason.

Potato Bread.

1 cup mashed potato.	2 to 4 tablespoons liquid yeast, or
1 teaspoon salt.	½ cake dry yeast, or
2½ cups flour (more if necessary).	⅙ to ½ cake compressed yeast.
4 tablespoons water.	

Short process: Mix the salt with the mashed potatoes, which are free from lumps and cooled until lukewarm. Add one-sixth to one-half cake compressed yeast softened in 4 tablespoons warm water, or 2 to 4 tablespoons liquid yeast, or one-half cake dry yeast. When liquid yeast is used no additional water must be added. Blend with this potato and yeast mixture 1 cup flour. Stir until smooth, cover, and set to rise. When this sponge is light and soft, knead in enough flour to make a rather stiff but elastic dough. Be sure that it is stiffer than ordinary dough. Cover and let rise again until very light. Knead down, mold, and place in lightly greased pan. Let rise in pan until as high as ordinary white bread, then bake at least one hour in a moderately hot oven. Bake very thoroughly. This makes one loaf.

If desired, an amount of grated raw potato equal to the amount of mashed potato called for may be used, but the resulting bread is darker and has a more marked potato flavor than when cooked potatoes are used.

Quick Breads.

Try this recipe for tea biscuits. Notice that the liquid is less than is the case when all flour is used, because of the water the mashed potato contains.

Potato Biscuit.

2 cups sifted flour.	3 tablespoons shortening.
1 teaspoon salt.	1 cup mashed potato.
3 teaspoons baking powder.	Liquid sufficient to mix.

Sift together twice the flour, salt, and baking powder. Cut or rub into this the cold shortening. In the same way rub into this flour mixture the mashed potato. Finally, add just enough cold liquid to make the mass cling together. Do not knead. Place on floured board, roll until one-half inch thick, and cut into rounds. Place these in lightly floured biscuit tins and bake 15 to 20 minutes in a moderately hot oven. Bake all potato breads more slowly than those made with flour alone.

Potato-Cornmeal Muffins.

1 cup mashed potato.	1 or 2 tablespoons sirup.
1 cup corn meal.	2 tablespoons shortening.
½ cup sifted flour.	1 or 2 eggs.
1 teaspoon salt.	Liquid to mix to a medium batter (about ½ cup).
3 teaspoons baking powder.	

Add the corn meal, salt, sirup, and one-half cup liquid to the hot mashed potato, place in double boiler, and steam 10 to 30 minutes. Add the shortening and allow to cool thoroughly. When cold add the well-beaten eggs and the flour, which has been sifted with the baking powder. Add just enough more liquid, if necessary, to make a somewhat stiff batter. Beat thoroughly, place in gem pans until half filled, and bake 25 to 30 minutes in a moderately hot oven.

Often when no dry bread crumbs are on hand fresh bread is used for stuffing purposes. This use of bread can be avoided by making the potato stuffing given below.

Potato Stuffing.

2 cups mashed potatoes.	1 stalk celery finely minced, or
1 egg (beaten).	½ teaspoon celery salt.
1 small onion finely minced.	1 teaspoon salt.
1 tablespoon fat.	Pepper.

Mix the ingredients and use in place of ordinary bread stuffing.

A cake with one-half of the flour one would ordinarily use replaced by potato is made as follows:

Chocolate Potato Cake.

¼ cup butter or other fat.	¼ teaspoon salt.
½ cup sugar.	1 square chocolate.
¾ cup dry riced potato.	3 teaspoons baking powder.
1 egg.	
¼ cup milk.	¾ cup white flour.

Cream the butter, add the sugar gradually, then the well-beaten egg, and warm potatoes. Beat well. Sift the flour, salt, and baking powder, then add to the first mixture with sufficient milk to make a cake dough. Bake about 35 minutes in a moderate oven.

Potato Cookies.

2 cups sifted flour.	¾ cup brown sugar.
½ teaspoon salt.	3 tablespoons shortening.
2 teaspoons baking powder.	1 egg well beaten.
	1 cup mashed potato.

Cream together the butter and sugar. To this add the well-beaten egg and the mashed potato (free from all lumps). Beat until smooth, then add the twice-sifted mixture of flour, salt, and baking powder. It will usually not be necessary to add any liquid. Mix until a dough is formed stiff enough to roll. Place on floured board, roll until about ⅛ inch thick, cut into rounds, and place on greased baking sheet. Bake 15 minutes in a moderately hot oven or until a delicate brown. Bake more slowly than ordinary wheat-flour cookies.

Meat Extenders.

Here are recipes for potato crust which you can use for meat pies and such dishes. Meat used in meat pie or meat stew with dumplings will serve more people than it would if cooked without such additions.

Beef Pie with Potato Crust.

2 cups flour.	¼ cup flour used to roll out.
½ teaspoon salt.	½ cup milk.
2 teaspoons baking powder.	½ cup shortening.
	1 cup mashed potatoes.

Potato Thistle.

Line a dish around the sides with mashed potatoes prepared as for the table, then fill with minced lamb, veal, or any other leftover meat, well seasoned, and cover the top with mashed potatoes and criss-cross with a knife. Put in oven and brown.

The meat and potatoes can be used from leftovers.

Creamed codfish or creamed smoked fish, or, for a change, chipped dried beef, with potatoes are old and favorite combinations, as is also a mixture of fish and potatoes in the form of fish balls.

Gravy goes well with potato and such a use helps to save fat for other purposes. So do not lose any of the good meat flavor when you roast meat or cook it in a frying pan, which you could save in the form of gravy; and do not forget that salt or smoked fish can be used in a very palatable way to flavor milk gravy, and this is a fine way to use skim milk.

Potato diseases of a preventable character frequently reduce the crop by from 50,000,000 to 100,000,000 bushels. While not entirely preventable, they should be guarded against to the fullest extent possible.

CORN ROOT-APHIS.

Crop Rotation, Deep Plowing, and Use of Repellants Recommended for Its Control.

Control of the corn root-aphis can be accomplished by simple practices, states Farmers Bulletin 891, "The Corn Root-Aphis and Methods of Controlling It," issued by the United States Department of Agriculture.

Control is important, the bulletin says, because in addition to corn, cotton, and asters this insect feeds on the roots of certain weeds and everywhere is fostered by a common species of field ant.

The control measures advocated are:

Crop rotation.—Avoidance of two successive crops of corn on the same land is pronounced effective not only in preventing injury by the corn root-aphis but also in controlling other serious pests. In the cotton belt it is important also to avoid following cotton with corn, or vice versa, since both plants are hosts of the same aphid. No other cultivated field crop is seriously affected by this insect.

Plowing.—Early and deep spring plowing, followed by several deep diskings, demoralizes the aphid and ant colonies and prevents the growth of weeds on which the aphis lives previous to the appearance of corn.

Repellents.—The use of certain substances possessing a pungent odor mixed with a chemical fertilizer, and distributed by means of a fertilizer attachment to the corn planter, repels the ants and prevents them from placing aphids on the roots of the corn or other cultivated crop.

Fertilizer Helpful.

The use of barnyard manure or other fertilizer is given as helpful in producing strong plants, though this does not reduce the number of aphids, directly or indirectly. It makes the plants stronger and able to withstand injury better. It is recommended only as supplementary to the practices already mentioned.

The corn root-aphis is now recoguized as one of the four or five most destructive insects affecting corn in this country. Community cooperation in fighting it is advocated strongly in the bulletin.

The relations between ants and the corn root-aphis are intimate. In the fall the ants carry the aphid eggs to their nest and care for them as they do for their own young, and in spring when the eggs hatch they tunnel along weed roots and place the helpless aphids on the host plant. The aphids are cared for in the same way during the summer months; indeed, throughout life they are wholly dependent on the ant, which obtains in return for its work a sweetish fluid, the "predigested" sap of the corn or other plant, which is given off in considerable quantities by the aphids.

Since the relationship between ants and aphids is so intimate and since the aphids are entirely dependent on the ants, it is evident that *any method which will disturb, demoralize, or destroy the ant colonies will reduce the numbers of aphids.*

WHEAT SAVING IMPORTANT.

Consumption in United States a Determining Factor in Amount Available for Export.

"Every little bit of wheat saved helps." This is not the text of "The World's Supply of Wheat," a recent publication of the United States Department of Agriculture, but it may be taken as the conclusion that the reader will draw from that part which treats of the present wheat situation among the entente allies. The important relation that every dining table bears to the freighters leaving Atlantic ports with cargoes of grain in their holds is brought out in the figures of the publication.

The per capita consumption of wheat in the United States is the important factor in determining how much will be available for export. The per capita consumption in the United States varies from year to year, the highest cited in the publication being 5.8 bushels in 1915, and the lowest 4.7 bushels in 1916. The Bureau of Crop Estimates of the department has estimated that the normal consumption in the United States amounts to 5.3 bushels per capita. Estimating the population of the United States this year to be approximately 103,500,000, normal consumption would require 556,000,000 bushels of the 699,000,000 bushels estimated available for distribution in the year ending July 1, 1918. The seed requirements for this year are placed at 87,000,000 bushels, and by leaving only very small stocks on hand July 1, according to the estimate, there will be only 23,000,000 bushels left for export July 1. If wheat is consumed at the rate computed for last year, 4.7 bushels per capita or 0.6 bushel less than the normal amount, there will be approximately 86,000,000 bushels for export.

Importance of Corn Bread.

Investigations of the Bureau of Crop Estimates have determined that the normal consumption of wheat in some of the Southern States, where little wheat is raised and the people eat much corn bread, was ouly 4 bushels per capita. If the people of the entire United States will substitute corn and potatoes for wheat to the extent that some of the Southern States do, the per capita consumption may be lowered to 4 bushels, and then there would be 158,000,000 bushels available for export. Even this amount would be considera bly below what the United States has contributed to the allies during the previous years of the war, for the exports of domestic wheat during 1914–15 were 323,000,000 bushels and during 1915–16 were 243,000,000 bushels.

TEACH ARMY COOKS FOOD SAVING.

Opportunities for the home economics demonstration workers of the United States Department of Agriculture are not limited to farm and town homes. Cooks in American army camps also have had an opportunity to hear about conservation methods from the department specialists. At one of the army schools for bakers and cooks in Mississippi demonstrations in food saving were much appreciated by the cooks in training, according to a report of the officer in charge, who described the demonstrations as a "wonderful success." The cooks are being taught ways to utilize the left-over food, the use of flour substitutes, and, particularly, new and attractive ways of serving cornmeal dishes. Demonstrations in the making and use of fireless cookers also have been conducted in the field ambulance hospital division.

PRICKLY SEEDED SPINACH.

Prickly seeded spinach, an old favorite type that is coming back on the market this year, because seed of the common spinach—Savoy leaf—is scarce, has just as much food value and as good a flavor as the smooth-leaf Savoy which you are more accustomed to buying. Don't snub it.

Specialists of the United States Department of Agriculture make this explanatien, because they fear a loss to growers may result from the belief of many consumers and dealers that the prickly seeded type, which somewhat resembles dandelion in appearance, is a new spinach, differing in food value. The Savoy is now almost the only type grown commercially, but it is explained that only a few years ago the prickly seeded spinach was the most popular kind produced for winter use.

Early this season plans should be made and executed in the building of suitable farm storage houses or cellars. This usually can be done at relatively low cost if undertaken in time.

LOOK OUT FOR LOCUSTS.

Periodical Cicada to Appear in May and June—Little Actual Damage Expected—Combative Measures.

Brood IX of the periodical cicada, commonly known as the 17-year locust, is expected to appear in May and June of this year, along the line of the Allegheny Mountains in West Virginia, Virginia, and North Carolina. In the main, this brood covers a rather compact territory, extending from the southern part of West Virginia, across Virginia into the northern part of North Carolina. There are a few reports of occurrences of this brood in Ohio, northern West Virginia, and Virginia, but these outlying colonies are of little importance.

The 17-year locust covers in its range nearly all of the United States from the Mississippi Valley eastward. The curious features of its regular periodic appearances and its long subterranean life give it perhaps the greatest popular interest which attaches to any insect on this continent, and lead to many inquiries with every reappearance of any important brood. There are two races of this insect: (1) The 17-year race, which occurs in 17 different broods over the northern and central United States, and (2) the 12-year race, which occurs in different broods throughout the Southern States from Texas eastward. When any of these broods are characterized by great swarms they naturally cause fears for the safety of trees. The actual damage, however, is slight and is accomplished by the female cicada when she cuts the bark of the tree in the deposition of her eggs.

Brood X Due in 1919.

While the expected brood is not an important one and does not cover very much territory, it is interesting as the forerunner of the largest of all broods of the cicada, namely, Brood X, which will appear in May and June, 1919, and which, in a general way, surrounds the area occupied by the brood of this year and invades nearly a score of States.

Damage Done and Partial Remedies.

Within the territory covered by this brood the amount of damage probably will be small and will be limited for the most part to young orchards. The damage to forested areas is negligible.

Ordinary repellent substances, such as kerosene emulsion or carbolic-acid solutions, seem to have very little effect in preventing the oviposition of these insects. Some recent experience, however, indicates that trees thoroughly sprayed with Bordeaux mixture or a lime wash are likely to be avoided by the cicada, especially if there are other trees or woods in the neighborhood on which they can oviposit.

The most reliable means of protecting nurseries and young orchards is by collecting the insects in bags or umbrellas from the trees in early morning or late evening, when they are somewhat torpid. Such collections should be undertaken at the first appearance of the cicada and repeated each day.

Vigorous young trees often recover in three or four years from the effects of a loss of, or injury to, a considerable percentage of their branches. However, it is difficult to overcome the unsymmetrical appearance which will commonly result from the indiscriminate pruning often necessary as a result of the female insects' work.

Treatment of Affected Limbs.

The worst affected branches should be removed. The less injured limbs may be coated on the wounded parts with grafting wax or moderately hard soap. These protective coverings should be renewed at least once a year, preferably in the spring, until the wounds are entirely healed over. It may be expedient, in the case of a badly wounded recently budded or grafted tree, to cut it back nearly to the bud or graft, so that an entirely new top may be made.

In the case of elder trees the main object of treatment is to secure the rapid healing of the wounds and prevent their being used as points of secondary infection by other insects. The worst injured limbs in such trees should also be cut out, so that all the vigor of the plant may be directed to the remaining wood. The healing process may be accelerated by thorough cultivation and the use of fertilizers on the land about the trees attacked.

HOW EXTRA HORSES CAN HELP.

Sometimes simply hitching an extra horse to an implement will increase the amount of work performed in a given length of time. Data presented in a bulletin of the United States Department of Agriculture show that the addition of a horse to the 14-inch walking plow and 2-horse team should increase the amount of work done by about 25 per cent. The use of the extra horse may apparently increase the cost of the plowing, but if the horse is on the farm and would be idle the additional acreage plowed is clear gain from the standpoint of the farm business as a whole. In Bulletin 560 of the Department of Agriculture it is pointed out that one of the best ways of keeping down the cost per day of horse labor is to keep the horses busy on productive work. On many farms there are some horses idle every day, except during the comparatively short period when the ground is being prepared for planting.

ENSILAGE CORN.

Plant Early to Insure Maximum Growth Before Frost—Late Planting a Mistake.

Seed corn not home grown, which is to be used in growing silage crops, should be planted early this year, corn specialists of the United States Department of Agriculture advise. It is an expensive mistake very generally made to plant the ensilage corn last, it is explained. For ensilage crops it will be necessary this year to supplement the small supply of home-grown seed in the Northern States with seed of good germination from farther south. This seed should be planted two or three weeks earlier than the home-grown seed.

After several years of testing, the Bureau of Plant Industry, Office of Corn Investigations, has established a fact which should be utilized by dairymen and growers of ensilage corn in the Northern States: When varieties of large corn to be used for ensilage—commonly called ensilage varieties—from Virginia or Missouri, for example, are planted in the Northern States late in May they make a rapid, long-jointed, tender, succulent growth. They are so green when fall frosts occur that they make silage which is too sloppy and sour. But the same varieties planted very early in May make a slower, hardier growth, withstand spring frosts and summer drought better, produce more grain, and reach a more advanced condition of maturity. Fall frost, not spring frosts, are most to be feared, the specialists say.

Home-Grown Varieties.

Home-grown varieties do not need and are not benefited by unusually early planting as are the ensilage varieties. Although dwarfed and ripened by early planting, the large-growing varieties will make ample stalk growth and the silage made from them will be richer and sweeter because of the early planting.

Although by the 4th of July corn planted in June may be as large as corn planted in early May, it will be soft and watery when fall frosts come, and not in as good condition for siloing as the early May corn. Corn planted early needs frequent and early cultivations to dry and warm the soil's surface. If the soil surface in the Northern States in May is wet it is also cold, and the corn can not grow. Stirring the soil causes the surface to dry rapidly. It will then absorb heat and feel warm to the hand, while uncultivated soil a few feet away will feel colder.

The smuts of wheat, barley, oats, and rye cause losses which are estimated conservatively at $50,000,000 to $60,000,000 in the United States in the average year.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MAY 15, 1918. No. 41

House Bill Would Appropriate $11,712,283 to Aid Agriculture

Revolving Fund of $6,500,000 Already Authorized for Seed Also Proposed

Control and Prevention of Diseases and Pests, Enlargement of Extension Work, Aid in Supplying Farm Labor Are Some Activities for which Bill Provides

Stimulating the production of foeds, feedstuffs, and live stock, promoting the fuller conservation of farm products and of foods, and facilitating the distribution of agricultural products generally, are the objects of the bill reported to the House May 6 by the Committee on Agriculture. It provides funds to enable the Department of Agriculture to maintain the agricultural emergency activities authorized by the food production act of August 10, 1917, for the full period of 12 months ending June 30, 1919, with such extensions in certain directions as experience during the present year and existing conditions seem to warrant. The new act carries an appropriation of $11,712,283, and, in addition, makes available as a revolving fund during the period of the war the $2,500,000 appropriated by the food production act for the purchase and sale of seed to farmers for cash at cost, as well as the $4,000,000 for the same purpose appropriated by the urgent deficiency act of 1918.

The bill authorizes the expenditure of the following sums for the purposes indicated:

Allotment of Funds.

For the prevention, control, and eradication of diseases and pests of live stock, the enlargement of live-stock production, and the conservation and utilization of meat, poultry, dairy, and other animal products, $1,058,975.

For the prevention, control, and eradication of insects and plant diseases injurious to agriculture, and the conservation and utilization of plant products, $811,300.

For the maintenance and development of the cooperative agricultural extension work which is conducted in cooperation with the State agricultural colleges, $6,100,000.

For extending and enlarging the market news service, preventing waste of food in storage, in transit, or held for sale, giving advice concerning the market movement or distribution of perishable products, and inspecting and certifying perishable agricultural products, $1,685,528.

For gathering authoritative information in connection with the demand for and the production, supply, distribution, and utilization of food, and otherwise carrying out the purposes of section 2 of the food production act, $449,700.

For controlling noxious rodents and destroying predatory animals, $225,000.

For special work in crop estimating, extending the work of the Bureau of Chemistry, enlarging the informational work of the Department of Agriculture, and printing and distributing emergency leaflets, posters, and other publications requiring quick issue or large editions, and other miscellaneous activities, $1,105,980.

Aid in Supplying Farm Labor.

For aiding agencies in the various States in supplying farm labor, $162,000. In addition the bill appropriates $500,000 to enable the Secretary of Agriculture, in cooperation with the Secretary of Labor and other agencies, to secure the voluntary mobilization and distribution of farm labor for the production and harvesting of agricultural crops, and to advance railroad fares and other actual traveling expenses for the transportation of such labor.

(*Continued on page 7.*)

THE PRESIDENT WILL RAISE SHEEP

Another convert in our "Raise More Sheep" campaign.

It's the President.

A flock of 16 Shropshire sheep started out the other day to make mutton and wool out of grass on the White House grounds. The President bought them and put them there because he and Mrs. Wilson like sheep and because they thought the beautiful little spot back of the White House, known as the "President's Park," might be even more than an inspiration in war time.

A fine example.

Now—

Will you match the President?

ARMY OF 1,500 WOMEN TELLS NATION TO EAT MORE POTATOES

Keep 30,000,000 Bushels From Rotting and Save Wheat, Message

Potatoes no Longer a Luxury; Cheap in Most Places. Department of Agriculture Force Well Organized for Campaign—Give Demonstrations

Thirty million bushels of potatoes, the estimated surplus of last year's crop, must be eaten before July 1 or they will rot. Potatoes are a cheap food now in most places. At 2 cents a pound they are equal in food value to bread at 8 cents a loaf. Every potato eaten saves wheat.

Fifteen hundred home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges started out recently to carry the message of "Eat More Potatoes" to every American woman, rural and urban, who can be reached.

They are saying that if potato consumption is not increased markedly within the next few weeks millions of bushels will rot, the wheat-saving effort will not be wholly successful, and farmers may not plant enough potatoes this year.

This nation-wide effort is the opening phase in a whirlwind drive to awaken the country to the necessity of saving the surplus potato crop. As it means also a saving of wheat, the combined forces of the Food Administration and the United States Department of Agriculture have undertaken jointly to urge these important campaigns.

Now that the potato crop is being moved and the prices on this product are falling to a wheat level, the necessity for cooperation of all Federal and State forces in a nation-wide potato campaign is imperative, Federal officials point out.

Potatoes for Patriots.

The home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges are ready to push the potato along a well-paved way. They are teaching how to use mashed potatoes as a substitute for wheat flour in breads and pies and cakes; they are giving instructions in the making of potato loaf and scalloped and baked dishes. They are show-

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ing women how they can train their families to eat potatoes cheerfully three times a day.

In the cities the gospel of potatoes for patriotism is spread through the war kitchens, the neighborhood centers, the clubs, the churches; demonstrations in settlement houses, talks before Red Cross auxiliaries, etc. Potato booths are being arranged in the local food shows and in the retail stores, and the schools, and clubs are being enlisted in the big drive.

Stimulate Rural Consumption.

In the country the work is not so spectacular but just as telling, for through the county organizations and the home-demonstration agents' voluntary workers, the potato idea is carried directly to thousands of women in their own homes.

These home-demonstration workers are dedicating their time and energy to the work of aiding the women of the country in their war-conservation problems and are proving more and more every day that this is the most direct and practical route for carrying an idea into the hearts and homes of American women.

Grain Bags Are Valuable Now—Make the Old Ones Serviceable

Unusually heavy demands on the jute supply of India and on the Calcutta bag industry, combined with the marine transportation situation, have caused the United States Food Administration to appeal to American farmers to order as soon as possible all the new bags they will need for sacking grain and other products, and, in addition to that, to prepare for use all old bags which can be made serviceable.

Bag buyers who do not place their orders while the present price of 25 cents per bag, f. o. b. tidewater, plus freight and distributor's normal charges, is in effect soon may have to pay from 28 to 30 cents or more, the Food Administration warns.

The Food Administration points out that big demands for sand bags have come for use in lining trenches. One English order alone is for 150,000,000 bags and the other allied nations, including the United States, are utilizing the same source of supply.

Elimination of printing and advertising matter on bags and bagging material is urged as a means of stimulating the reuse of bags.

The Food Administration held a conference February 26 last with representatives of bag importers and others interested, at which time a price of 25 cents was agreed upon. The matter of price and supply of bags is entirely in the hands of the Food Administration and all inquiries relating to bag prices and supplies should be addressed to them.

Help a Farmer Hold the Line—Town Man's Duty This Season

If one part of the western front fails to hold, no matter at what cost, when the command has been issued that no ground must be given, the freedom of the world, *your* freedom, *your* family's security, are imperiled.

If one State fails to hold its part of the line back home—fails to produce its part of the food crops needed for war purposes—the strength of the battle front is weakened. And as it is weakened your home becomes less secure. That is the personal meaning of the situation.

The gravest period of human history may be described in terms of a popular American expression—and practice. Civilization endures or declines, freedom flourishes or fails, just as that line on the western front "delivers the goods," just as the production line back home "delivers the goods," just as *you* "deliver the goods."

Will You Deliver?

The Western line is making delivery. What about your State, your county, your town—*you?*

It is necessary in every county and community for emergency farm labor needs this summer and fall to be supplied by emergency workers from the towns of that county and community as far as possible.

Which means that *you*—a town man of past farm experience—are called, as a patriotic duty, to work on near-by farms this summer and fall at such intervals and for such periods as local conditions may require.

Which means that *you*—a farmer—must make the best of this emergency help as a patriotic duty. We can't pick and choose and split hairs over niceties of preference now. If we do the Germans may win while we are quibbling. Every earthly question is secondary to the one supreme consideration of winning the war. We can't win the war without food; we can't produce food without farm labor; we can't have sufficient farm labor this year unless high-school boys and town volunteers are used to the utmost in every community, idlers forced to go to work, every community's entire energy turned to farm work during the "peaks" of cultivation and harvest.

It's Your Responsibility.

Some town people have had this attitude: "Oh, it is hard work on farms, and the pay is smaller than I earn in town. Why should I lay off from my town job even for a short time and do farm work? Why can't some one else do it? One person doesn't amount to much. So what does it matter whether *I* do any farm work in this county or not?"

Of course, if *you* were the only person in all the United States to have a "let-the-other-fellow-do-it" viewpoint it would make no difference. But suppose the other fellow feels the same way. All it would amount to, if that sort of thing continued, would merely be—our losing the war. That is the importance of *your* part.

Some farmers have had this attitude: "Oh, it is hard to make crops with haphazard help—boys and town volunteers. Why can't some other farmers use that sort of help? One farm doesn't amount to much. What does it matter whether *I* keep up my production by using this emergency labor or not?"

As in the case of the town man, it would be a trivial thing if *you* were the only one. But the other farmer may conclude *he* is safe in "laying down on the job" since *you* are going to do *your* part. A continuance of that would merely mean—our losing the war. That is the importance of *your* part.

The only course that is safe and certain is for *every* town person of farm experience to go to work on farms in his community, when and where he is needed during the heavy periods this summer and fall; for *every* farmer to use all the help of this kind that he needs and can secure.

Duty Is the Word.

It will be more or less inconvenient in each instance. It will be more or less of a hardship to each party. The war is chock full of inconveniences and hardships. The trenches are not places of ease and comfort and financial reward, and the fighters have not fared forth upon joy rides and pleasure parties. They charge into hell, not because it is a pleasant thing to do, but because it is their duty so to do under the grim circumstances of war. The town man must go to the farm for precisely the same reason. The farmer must accept him for precisely the same reason. It is a little enough thing for either of them to do by comparison with the things the men at the front are doing.

It isn't a work to be left to the other State; it must be done in *your* State. It isn't a work to be left to the other county and the other town; it must be done in your county and your town. It isn't a work to be done by the other fellow—it must be done by *you*.

The poultry house should be built as low as possible without danger of the attendants bumping their heads against the ceiling. A low house is more easily warmed than a high one.

Eat potatoes, save the wheat,

Drive the Kaiser to defeat.

CANDLING EGGS, EASY TO DO, BEST WAY TO GRADE PRODUCT

Stovepipe Over Kerosene Lamp Makes a Candler for Farm Use

Holding Egg to Light Will Show Its Edible and Marketable Qualities—How to Interpret Appearances Before the Lamp

A knowledge of candling is essential to egg grading. Grading is becoming more and more customary in the sale and purchase of eggs, because only by candling can it be made certain that shipments of eggs comply with Federal, State, and other regulations, and because the most important quality of an egg—freshness—can be best judged by candling. The process, in simple terms, is to hold an egg before a shaded light in a dark room, and by noting certain characteristics seen through the semitransparent shell to determine its edible and marketable qualities.

A Sample Outfit.

Farmers with only a few eggs to market may improvise a candler by placing a stovepipe over a kerosene lamp, cutting a small hole in the pipe, level with the light. The egg is held in a slanting position at the opening. It is twisted a few times to the right and left and then from end to end, so that its entire contents may be visible. Care should be taken that the fingers or hand do not conceal small blemishes, which otherwise would be disclosed by the light. The beginner should study carefully the general formation of an egg, as this detailed knowledge is necessary for the application of the standards of various grades and qualities.

Structure of the Egg.

The yolk ranges in color from light yellow to orange, and occasionally is olive green. The eggs with olive-green yolks are less desirable because of this color but are considered edible. The yolk is contained in a delicate membrane and on its surface is a small light-colored circular area called the germinal disk from which the chick develops. The yolk always floats in the white with the chick spot on top. Around the yolk lies a small quantity of thin white and then a heavy layer of thick white. Twisted cord-like coils of opaque white material called chalazae extend from the yolk through the white toward each end of the egg and hold the yolk in position, yet allow it to turn freely.

The Air Space.

Between the white and the shell are two fibrous membranes with an air space between them. When first laid, the contents fill the entire egg, but when the egg cools the contents shrink and these membranes separate, forming an air space. The size of this air space is important in determining the freshness of the egg. As the egg ages the air space increases in size. Most bad eggs have enlarged air spaces.

Weak Whites.

A fine, thick white is found in a fresh egg, and a weak thin white in a stale egg. As the egg becomes stale the amount of thin white increases and the amount of thick white decreases. Several classes of bad eggs are indicated by discolored whites.

The Yolk As a Guide.

The yolk of the fresh egg when twirled before the candle is seen dimly as a dark object moving slowly in the white. The yolk of a stale egg is seen more plainly than that of the fresh egg. When the yolk is so weak that the shake of the egg in candling causes it to break it should be graded as unmarketable. In the fresh egg the yolk is slightly above the center in the large end of the egg. As the egg becomes stale the yolk floats higher and nearer the shell.

The start of incubation in a fertile egg may be detected by a reddish glow surrounding the germinal spot. (Such eggs, although considered edible, are not graded as firsts.) This reddish glow is entirely different from the so-called blood ring, which indicates that the egg is unfit for food.

Where there is any doubt as to an egg's fitness for food purposes, the candler should give the consumer the benefit of the doubt and reject it.

Don't Waste the Garden Seeds—Crowded Plants Won't Do So Well

People who buy more garden seeds than they need or sow seeds too thickly will be depriving some one else of seeds and may cause a scarcity, according to garden specialists of the United States Department of Agriculture.

It is easy to plant more seeds than is necessary when the assumption is that a few more or less will make no material difference. Later the extra plants have to be thinned out or more often are left to crowd together and produce an inferior crop.

It is assumed that before purchasing the seeds the garden plan has been carefully made and the actual amount required has been determined. If this is done, there will be no occasion for waste. The most successful market gardeners figure very closely upon the amount of seed required. They buy the best obtainable and then plant only the required number to the hill or row.

In the Southern States, approximately 30,000,000 bushels of sweet potatoes are produced annually, and it is estimated that at least 10,000,000 bushels of these are lost annually by decay.

MORE STOCK IN THE FORESTS TO SPEED 1918 PRODUCTION

Grazing on National Tracts Increased by 500,000 Sheep and 500,000 Cattle

War Needs Call for Further Enlargement Over Last Year's High Mark—Productiveness of Ranges Steadily Rising Under Conservative Handling

To meet the war needs of the country, sheep and cattle will be grazed on the national forests in increased numbers this year. Half a million more sheep and nearly a quarter of a million more cattle will be taken care of than last year, according to the officials of the Forest Service. This will bring the total number of stock grazed under permit to about 9,000,000 sheep, 2,360,000 head of cattle, and 51,000 swine.

This increase is on top of an increase of 200,000 sheep and 100,000 cattle made last year, when it was recognized that the country's need for beef, mutton, wool, and hides called for the fullest possible use of the national-forest ranges. Through conservative handling of these ranges for more than 10 years their productiveness has been steadily rising. With the country at war, the Secretary of Agriculture felt it was necessary to take some chances of overgrazing in the interest of larger immediate production. The results of admitting a larger of number of live stock were, however, carefully watched. The further increases made this year are mainly made possible by finding out how additional stock can be grazed without injury to the ranges through more intensive methods of use.

Open New Country.

These include readjustments in the allotments of range, closer utilization of the forage, and the opening up of country not before used for grazing stock. In order to make the new areas accessible to stock it has been in many instances necessary to construct trails or driveways. Watering facilities have also been improved. The various increased allowances have been authorized only after careful consideration.

The largest increase has been made in the Colorado and Wyoming forests, where 51,000 additional cattle and 151,000 more sheep will be grazed. In the State of California there will be 137,000 more sheep. The provision for more cattle is widely distributed through relatively small increases on practically all of the forests.

In Colorado virtually all of the additional sheep to be grazed are owned in small numbers by settlers of the immediate vicinity. Under present war-time conditions it is no longer necessary to handle sheep in large bands in order to make the handling profitable.

How California Organized Forces For 1918 Food Production Drive

This report of how California's agricultural leaders in a State conference dealt with problems of increasing food production this year is published here in some detail because of the helpful suggestions it may contain for other communities, particularly in the matter of local initiative.

Twenty thousand farmers sent their representatives to the number of 250 to the conference of the farm bureaus of California held in Agriculture Hall at the University of California on March 11. President Wilson sent a special message by telegraph to the conference, and in response the farmers decided upon definite food production campaigns for the State during the coming season.

Thirty-five counties of California representing 85 per cent of the farms of the State now have county farm bureaus organized on a definite plan under the war legislation of Congress which provided for such an organization for every agricultural county in America, with a special county agent whose salary is paid jointly by the United States Department of Agriculture and the State University. The 20,000 farm bureau members of California are organized to carry out the food-production campaigns of the Government as well as other measures for rural betterment.

The morning session opened with 300 farmers and county agents in attendance. They came from Humboldt County in the north to San Diego County in the south. Prof. B. H. Crocheron, State leader for the Government and the University of California, presided. He first read President Wilson's message, as follows:

B. H. Crocheron,
Emergency Food Production Conference,
Berkeley, Cal.

I am greatly interested in the Emergency Food Production Conference now being held at Berkeley. It is highly important that we do everything within our power to secure sufficient supplies for our own population and Army and for the nations with which we are associated. I trust the conference will find ways of overcoming the difficulties inherent in the situation, and that its labors will be fruitful of large results, and thereby aid in bringing this war to a successful termination. May I not suggest that you read to those assembled at the conference as a message from me the recent statement I made to the farmers of the nation through the conference at Urbana?

Woodrow Wilson.

The White House, *Washington, D. C.*

Following this, as requested by the President, the longer address delivered to the farmers of Illinois was read by the members of the conference.

Sweet Sorghums Urged.

The conference then discussed the campaign for silos and the growing of sweet sorghums, which is proposed for all the interior districts of the State. The farm bureaus propose to canvas every dairyman in each county, calling attention to the value of the silo in meeting the feed shortage, and telling him how in many counties the sweet sorghums have been tried, and have often produced a higher yield for silage purposes than any other foodstuff. Furthermore, it will be shown that dairymen may safely raise more sweet sorghum than is needed for the silo, since the surplus may be made into sorghum sirup, thus tending to relieve the threatened sugar shortage. Within the next two months 1,000 committeemen in 450 centers representing communities of the State will be at work on this project.

Need More Pork.

The campaign for increased pork production was next discussed. Since the recent high prices of grain large numbers of brood sows have been going to the packers, although the Army needs pork and wheat above all other products. Committees working in the various communities of the State will see that the 20,000 farm bureau members sign patriotic pledges to raise two pigs or to care for one brood sow more than otherwise would be done on the farm. It is expected that at least 40,000 more hogs will be produced in California during the next season as the result of this campaign.

Boys on the Farm.

Boys on the farms are not to be forgotten, since the farm bureaus are planning for an enlargement of the boys' agricultural clubs carried on under the auspices of the University. Already 3,000 boys in the high schools are members of these agricultural clubs, and now that the farm bureaus are to further the enterprise it is proposed to carry the propaganda into every hamlet of the 35 counties. These boys will raise crops for their own profit and for the winning of the war. It is really an enlistment of the youth of the State to make more food.

Organize Farm Women.

Miss Lillian D. Clark, in charge of the Women's Extension Work of the University of California, proposed to the farm bureaus the installation of farm home departments in order to organize the rural women in the farm bureau enterprise and to make the conservation of food in the home a definite part of the county work. She told how women's committees will be organized in every farm bureau center and how she desired to elect at least one woman to every county board of directors. Her response met the enthusiastic approval of the directors, who voted unanimously for this form of work for the farm home.

Grain Crop Problems.

At the afternoon session, the first topic discussed was the question of grain sacks and how California should handle her grain crop. Considerable sentiment has developed throughout the State for changing from sacked to the bulk handling of grain which, however, would entail the building of grain elevators at local stations as well as at central points. The College of Agriculture, while approving the plan for the bulk handling of grain, has felt that in deference to the war activities of the Government no unnecessary building should be carried on at this time. A letter was read from Mr. W. A. Starr, of the Federal Grain Corporation, setting forth the views of the Government, and that it was unwise at this time and that the Government was making plans to pay a higher price for the sacked than for bulk grain, so that the farmer would have returned to him a considerable portion of the money expended for grain sacks.

Labor Situation.

The farm labor situation was extensively discussed from several angles, a number of

CALIFORNIA'S FOOD PRODUCTION PROGRAM

1. To urge the building of a silo and the planting of sweet sorghums for silage and for sirup on every dairy farm in California.
2. To put out on 20,000 farms one good brood sow or two pigs in order to increase the amount of pork that the State will raise. At least 40,000 more hogs will be raised.
3. To develop boys' agricultural clubs in every community in California where supervision can be provided. Three thousand boys are already growing crops. Thousands more are to join from this campaign.
4. To bring the women of California who live on farms into an organization as a part of the county farm bureau in order to increase the food-conservation movement.
5. To handle the farm labor situation by eliminating unnecessary activities and working harder on the essential ones; also to further the better distribution of labor by means of Federal employment stations and the cooperation of the farm bureaus.
6. To investigate immediately the seed supply of the State in order to be assured that an adequate amount is on hand to plant the 1918 crops.
7. To protect grain fields and grass ranges from fire by means of county-wide fire protective organizations under the farm bureaus and thus eliminate a quarter of a million dollar annual loss in foodstuffs.

directors calling attention to the fact that their communities were threatened with a labor shortage. All, however, evinced a determination to meet the situation as best they could. Prof. R. L. Adams, State labor agent for the College of Agriculture and the State Council of Defense, told the plans that the college is making to continue its research work on how the labor shortage may be met.

W. T. Boyce, director of employment of the United States Department of Labor, told how the department, in cooperation with the State, is planning to locate a large number of branch employment offices for seasonal labor in various parts of the State. His plan secured the enthusiastic approval of the delegates.

Grain Fire Protection.

In order to save the losses incident to fires in grain and hay fields a fire protective organization was planned for every grain-growing county. The farm bureaus are to divide the counties into sections, each of which is to have a volunteer organization with a "fire boss" and a dispatcher in charge. Trailers to fasten to automobiles are to be located at central points in each district and will be equipped with simple fire-fighting apparatus. Results in several counties last year where the plan was tried show that the annual loss of a quarter million dollars of food stuffs can be prevented.

Farm Seed Supply.

The last topic of the afternoon was a discussion of the farm seed supply, several farm bureaus telling how, in order to anticipate the shortage of seeds, they had last year selected large amounts of highly bred grain sorghums which are now being distributed to members in the various communities. Meanwhile all the farm bureaus are making seed surveys of their counties in order to locate available sources of seed and to estimate the amount needed by the farmers throughout the State.

Canada at War.

At night, Dean Thomas F. Hunt, who recently spent considerable time studying the effect of the war on Canadian agriculture, delivered an address on "Canada at War" before a large public audience in the auditorium of Wheeler Hall, which showed how the farmers of Canada since the war began have increased their production 46 per cent, even while one-fourth of the men of the country have been in the army or munitions. "This remarkable showing," Dean Hunt says, "was accomplished by eliminating unnecessary occupations and by working harder on the essential ones."

Start on Trip.

Tuesday morning the 145 delegates to the conference started on a tour of inspection of

(*Continued on page 6.*)

SHORTAGE OF 2,000,000 TONS OF SUGAR REASON FOR SAVING

Department Investigators Explain Why World Production Has Been Reduced

Destruction of Mills and Devastation of Sugar Lands in Europe Primary Causes—Before War Most Belligerents Exported; Now Import

If any man has failed to see the reason why he should cut his plentiful apportionment of two spoonfuls of sugar to the one of war time, he can find it in a recent publication of the United States Department of Agriculture explaining the world-wide shortage—especially the shortage among the allies—in the supply of sweets.

Not only has the supply of sugar in some parts of the United States been short, but there has been an actual shortage of more than 2,000,000 tons annually in the world since the war began, and the shortage is likely to continue, the publication says, primarily because of the destruction of a large number of sugar mills and the devastation of a considerable area of sugar-producing lands in Europe.

Prior to the war practically all the belligerent countries, with the exception of the United Kingdom and Italy, exported sugar, the total amount being upward of 3,000,000 tons. War, however, has changed the sugar-production map, and at the same time has shifted the channels of trade. In 1918 it is estimated that the allies must import a minimum of 1,200,000 tons of sugar.

Sources War Shut Off.

Formerly the United Kingdom and France depended to a considerable extent upon Germany, Austria-Hungary, Belgium, and Russia for sugar. These sources were shut off by the war. The United Kingdom alone thus lost the source of more than half of her normal supply of sugar and has turned to new as well as other old sources for her supply. The changes thus brought about have been largely a diversion of the product of Mauritius to the United Kingdom instead of to India, and an expansion of the imports of unrefined sugar from Cuba, the Philippines, and Peru. For refined sugar she drew upon the United States and Java. However, the allies can not turn to such exporting countries as Java and Mauritius without being forced to go a much longer distance and over a more perilous route than across the Atlantic. If the allies are compelled to go to these countries it will require an extra amount of shipping which is needed for transportation of American soldiers and supplies to France and England.

Russia's exports practically ceased in 1914, and she is now reported as somewhat short of sugar. Italy's crop decreased last year and her imports have increased largely since the war began. Italy's normal consumption, however, is small and her deficit is not serious.

THIS BULLETIN TELLS HOW TO MAKE THE GARDEN GROW

The city gardener as well as the raiser of vegetables in the country will find information of value in "The Farm Garden in the North." This publication is Farmers' Bulletin 937, and is offered by the United States Department of Agriculture to all who make individual requests for it to the Division of Publications of the department.

The bulletin was designed primarily for farm gardens, but its information is presented in such a way that it is expected to be of just as great value to the city or suburban gardener. Among the topics treated are:

Location, plan, and arrangement of the garden; preparation of the soil; manures and fertilizers; seeds and plants; quantity of seed required for a family of four; use of hotbeds and cold frames; the seed bed; seed sowing; depth of planting and distance apart; transplanting and hardening off; setting plants in the open ground; time of planting; planting zones for the eastern United States and the western United States; latest dates for planting vegetables; succession and rotation of garden crops; cultivation and irrigation of garden crops; fall and winter care of the garden; insects and diseases; storage of surplus vegetables; cultural directions for the various crops.

Another bulletin expected to be of value to the big army of 1918 home gardeners is Farmers' Bulletin 856, Control of Diseases and Insect Enemies of the Home Vegetable Garden. This also is offered for free distribution to all who make individual requests for it.

KEEP THE TRACTOR BUSY

Owners of tractors which are not kept busy through the spring plowing and seeding season will perform a patriotic neighborly duty by granting use of these outfits to neighbors who may be short of labor or hands to prepare seed beds. A reasonable rate of hire for the tractor would enable the tractors to make a return during otherwise idle periods, but, most important, will make it possible for others at reasonable expenditure to have a full acreage and add to the Nation's important food supplies. The same plan might be followed, Department of Agriculture specialists point out, with regard to horses and various farm machines which should not be allowed to remain idle when a food-producing neighbor can keep them busy on victory crops.

PACKING EGGS PROPERLY CUTS SHIPPING LOSS TO 1 PER CENT

Two-Year Test Covered Carload Lots Traveling Average of 1,200 Miles

Less Than 2 Per Cent in Loss May be Expected by Following Commercially Practicable Methods of Packing, Storing, and Hauling

The total damage to eggs transported in carload lots was reduced to less than 1 per cent in tests conducted by the United States Department of Agriculture covering a period of more than two years, and in which the eggs were shipped on an average of 1,200 miles. The amount of damage sustained in marketing eggs in carload shipments, according to various reliable authorities, averages from 3 to 9 per cent. By following good, commercially practicable methods of packing, storing, and hauling, eggs can be transported in carload lots with a total damage, including "checks," "dents," and "leakers," of less than 2 per cent, according to Bulletin No. 664 recently issued by the department, which discusses the experiments and best methods of transporting eggs from the producer to the consumer.

Pack in Standard Cases.

In order to reduce egg losses to the minimum, according to the bulletin, they should be packed in new standard cases symmetrically made with 5, or preferably 6, 3-penny cement-coated nails at each corner of the sides and bottom and at the center partition. Cases made of cottonwood have, on the whole, the greatest number of advantages. Medium fillers (3 pounds, 3 ounces) or heavier should be used. It is absolutely necessary, also, that the filler be perfectly new. Even a short-haul shipment into the packing house should disqualify the filler for further use. Suitable cushions of excelsior, with a flat, should be placed on the top and bottom of the case. Corrugated board on the top of the case affords practically the same protection as the excelsior cushion, provided it takes up the slack.

Care in Loading Cars.

The load of eggs must be a solid unit in the car, fitting without play. This, according to the bulletin, is the most important factor in avoiding damage in transit. The amount of damage in properly loaded cars buffed with straw is slightly less than in the same cars buffed with wood. In placing the buffing, care should be taken not to permit it to prevent circulation of air, which is essential to good refrigeration. When the straw buffing is placed at the bunkers and extends from the top of the load to the floor of the car, it was found that at least 50 per cent of the refrigeration is lost.

Self-bracing of the load by means of suitable strips placed below the cases proved much more satisfactory than braces nailed to the car. Nailed braces seldom arrive in place and frequently cause much damage.

How California Organized Forces For 1918 Food Production Campaign

(*Continued from page 5.*)

farm bureau enterprises from Berkeley to Bakersfield. They traveled in 45 automobiles and saw various farm bureau activities in nine counties of the San Joaquin Valley. The days were spent in inspecting experiments on farms, grain elevators, model farmsteads, improved farm machinery, and every evening a farm bureau center meeting was held in a different county. They arrived at Merced Tuesday night, at Fresno on Wednesday night, Fowler on Thursday night, Porterville on Friday night, and on Saturday night were at Bakersfield, where the conference adjourned with a banquet tendered by the Kern County farm bureau. More than 600 miles were traversed by automobile during the week. No similar conference has ever been held in any other State. Among the counties represented were the following: Alameda, Butte, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Imperial, Kern, Kings, Los Angeles, Madera, Mendocino, Merced, Monterey, Napa, Nevada, Orange, Placer, Riverside, Sacramento, San Diego, Santa Cruz, Sonoma, San Bernardino, Shasta, Solano, Stanislaus, San Joaquin, Sutter, Tehana, Ventura, San Luis Obispo, Yolo, and Yuba.

Every individual in the home poultry flock should show vigor and strength. Size (not fat), erectness, activity, bright eye, and red comb are favorable points indicating good constitution. Drooping tail or wing, weakened legs, head and neck not erect denote weakness. Pullets bred from good layers are preferable. A good layer will be a hearty feeder and usually a vigorous worker. Pullets hatched early will prove better winter layers.

The free use of an effective lice powder is always in order. A dust bath is very essential in ridding the fowls of lice. Whitewashing is effective against vermin. Use kerosene on the roosts and in the cracks to exterminate mites.

Eat potatoes with their starch,

Help the fighters on their march.

OAK POISONING RESULT OF PASTURING CATTLE TOO EARLY

Animals Eat Excessive Amounts Before Other Forage Comes On

No Harm in Oak if Small Quantity of Hay is Fed—Use Ranges Only After Grasses Have had Fair Start

It has been definitely proved that excessive feeding on oak leaves and buds causes stock poisoning. Reports of stock poison-Mexico were investigated by specialists of ing from Colorado, Utah, Texas, and New the United States Department of Agriculture, and a study was conducted in certain districts where oak is the principal form of vegetation. It was found that the poisoning usually occurs in early spring before grasses and other suitable forage have developed sufficiently to furnish a supply of feed. The department specialists recommend, therefore, that cattle should not be turned on the summer range too early or that they be provided with some other feed until the grasses have a good start.

The losses from oak in America seem to be confined to cattle, although there have been unconfirmed reports of the poisoning of sheep. No cases are known among horses. The most noticeable symptom is extreme constipation; the affected animal becomes gaunt, its coat rough, its nose dry and cracked. The attitude is peculiar, the head being extended forward. Appetite is lost and weakness increases until the case is ended by death. These symptoms appear after rather long feeding upon the oak, not less than about a week, and the animals may die in two weeks or in some cases linger for an indefinite period.

Treatment of Oak Cases.

While affected animals may be relieved by treatment (Epsom salt in 1-pound doses or given in small quantities in the drinking water), the sensible treatment is to prevent the trouble by proper feeding. It has been found experimentally that if a small quantity of hay is added to the daily ration no harm results from oak feeding. As small a quantity as three pounds of alfalfa hay daily with oak will provide a maintenance ration for a two-year-old steer. Oak may be considered a good forage when other feed is provided. In fact, cattle in Utah frequently come off the oak ranges in the fall in fine condition.

There is no doubt that in some localities cattle are admitted to the summer range too early. They frequently pass into the oak zone when there is practically nothing else on the range and in their greed for green material they are forced to eat the young

leaves. It has been shown by observation that they do not eat them by preference, but will take grass more readily if any is to be found. It is, therefore, more profitable in the end to feed a little longer and use the range only after the grasses have had a fair start. The exact time when this should be done can not be determined in advance, but should be fixed each year after a careful examination of the range.

House Bills Would Appropriate $11,712,283 to Aid Agriculture

(*Continued from page 1.*)

As indicated, the bill also contains a provision making available as a revolving fund during the period of the war the $6,500,000 heretofore appropriated for the purchase and sale of seed to farmers for cash at cost.

Authority to Requisition Buildings.

Furthermore, the Secretary of Agriculture is given authority, for the official purposes of the Department of Agriculture, to requisition the use of, and take possession of, any building or any space in any building, or the appurtenances thereof, in the District of Columbia, other than a dwelling house occupied as such, or a building occupied by any branch of the United States Government, and to ascertain and pay just compensation for such use.

The bill is strictly a war emergency measure, and the appropriations provided by it are in addition to those carried in the appropriation act, which has already passed both Houses of Congress, for the maintenance of the regular activities of the department.

To Foster Agricultural Industry.

"The farmers of the Nation last year," the the report on the bill states, "following the suggestions of the Department of Agriculture and of State agricultural agencies with which it is closely cooperating, and inspired by patriotic motives as well as by economic interests, succeeded in overcoming difficulties and in greatly enlarging their operations. They planted the largest acreages in the history of the Nation, produced record crops of most things, and increased the number of live stock. With effective organization and application and with such assistance as the Department of Agriculture and the State agricultural agencies with their increased personnel and facilities can render, it is believed that they can better the record of last year and again produce large quantities of foods, feedstuffs, and live stock, not only to meet the needs of this country but of the nations of Europe with which we are associated in this great struggle. The committee urgently recommends that the appropriations suggested in the accompanying bill be made available to the Department of Agriculture in order that it may continue to foster in every feasible way the great agricultural industry of the Nation."

Many Ways for Using Peanuts— One of the Cheapest and Best Foods

Many new ways of using the peanut, one of America's best and cheapest foods, and valuable as a meat substitute, have been found by the Office of Home Economics of the U. S. Department of Agriculture. The following recipes have been originated and tested by that office:

Creamed Peanuts on Toast.

2 cups milk.
1 cup finely ground roasted peanuts.
1 teaspoon salt.
1 teaspoon cornstarch.
1 teaspoon onion juice.
¼ cup chopped stuffed olives.

Canned pimentos, chopped green peppers cooked until tender, or cooked celery are equally as good as stuffed olives.

Scald milk in the double boiler, reserving a tablespoon of cold milk to mix with the cornstarch. Add with onion juice and other seasonings to the hot milk. Let come to a boil and finish cooking over the double boiler. Add the peanuts the last thing before serving. Serve on toast.

Good for a luncheon dish.

Creamed Peanuts and Rice.

1 cup rice (uncooked).
2 cups chopped peanuts.
½ teaspoon paprika.
2 teaspoons salt.
White sauce:
3 tablespoons flour.
3 tablespoons fat.
3 cups milk (whole or skim).

Boil the rice and make a white sauce by mixing the flour in the melted fat and mixing with the milk. Stir over fire until it thickens. Mix rice, peanuts, and seasoning with the sauce, place in greased baking dish, and bake for 20 minutes.

Peanut Fondu.

1 cup finely ground peanuts.
1 cup dried Liberty-bread crumbs.
1 egg.
1¾ cups milk.
1½ teaspoons salt.
Dash of paprika.

Grind the peanuts fine. Mix all the ingredients except the white of egg. Beat egg white very stiff and fold in. Bake in a buttered baking dish for 30 to 40 minutes in a moderate oven.

Peanut Loaf.

1 cup chopped peanuts.
2 cups Liberty-bread crumbs.
2 tablespoons melted fat.
1 egg.
½ teaspoon salt.
¼ teaspoon pepper.
½ to ¾ cup milk.

Mix, using enough milk to make a moist loaf. Put in buttered pan and bake an hour in a moderate oven, keeping covered the first half hour. Baste once or twice with melted fat. Turn into a hot platter and sprinkle with chopped peanuts.

Peanut-Potato Sausages.

1 cup mashed potatoes.
1 cup ground roasted peanuts.
1 egg, well beaten.
1½ teaspoons salt.
⅛ teaspoon pepper.
Salt pork, bacon, or other fat.

Mix the mashed potatoes and seasonings with the ground nuts. Add beaten egg. Form into little cakes or sausages, roll in flour, meal, or Liberty-bread crumbs, and place in greased pan with a small piece of fat or salt pork on each sausage. Bake in a fairly hot oven until brown.

Parched Corn-meal Biscuits (Without Wheat).

½ cup yellow corn meal.
1 teaspoon salt.
1 cup peanut butter.
1½ cups water.

Put the meal into a shallow pan, heat in the oven until it is a delicate brown, stirring frequently. Mix the peanut butter, water, and salt, and heat. While this mixture is hot, stir in the meal which also should be hot. Beat thoroughly. The dough should be of such consistency that it can be dropped from a spoon. Bake in small cakes in an ungreased pan. This makes 16 biscuits.

Peanut Muffins.

¾ cup corn meal
1½ cups rye flour.
1 cup finely ground peanuts.
1 egg.
1 teaspoon salt.
1¼ cups milk.
4 teaspoons baking powder.

Add liquid to dry ingredients and mix well. Bake in well-greased muffin pans.

Peanut Brownies.

(These use no sugar, no white flour, and no shortening.)

½ cup corn sirup.
2 tablespoons strained honey.
1 square chocolate.
¾ cup buckwheat flour.
½ teaspoon baking powder.
1 cup chopped peanuts.
¼ teaspoon salt.
1 teaspoon vanilla.

Melt the chocolate and mix with the corn sirup and honey. To this add 1 teaspoon vanilla and the dry ingredients—flour, baking powder, salt, and nuts. Mix well and drop by the spoonful on well-greased pan. Bake in a moderate oven.

Peanut Salad With Bananas.

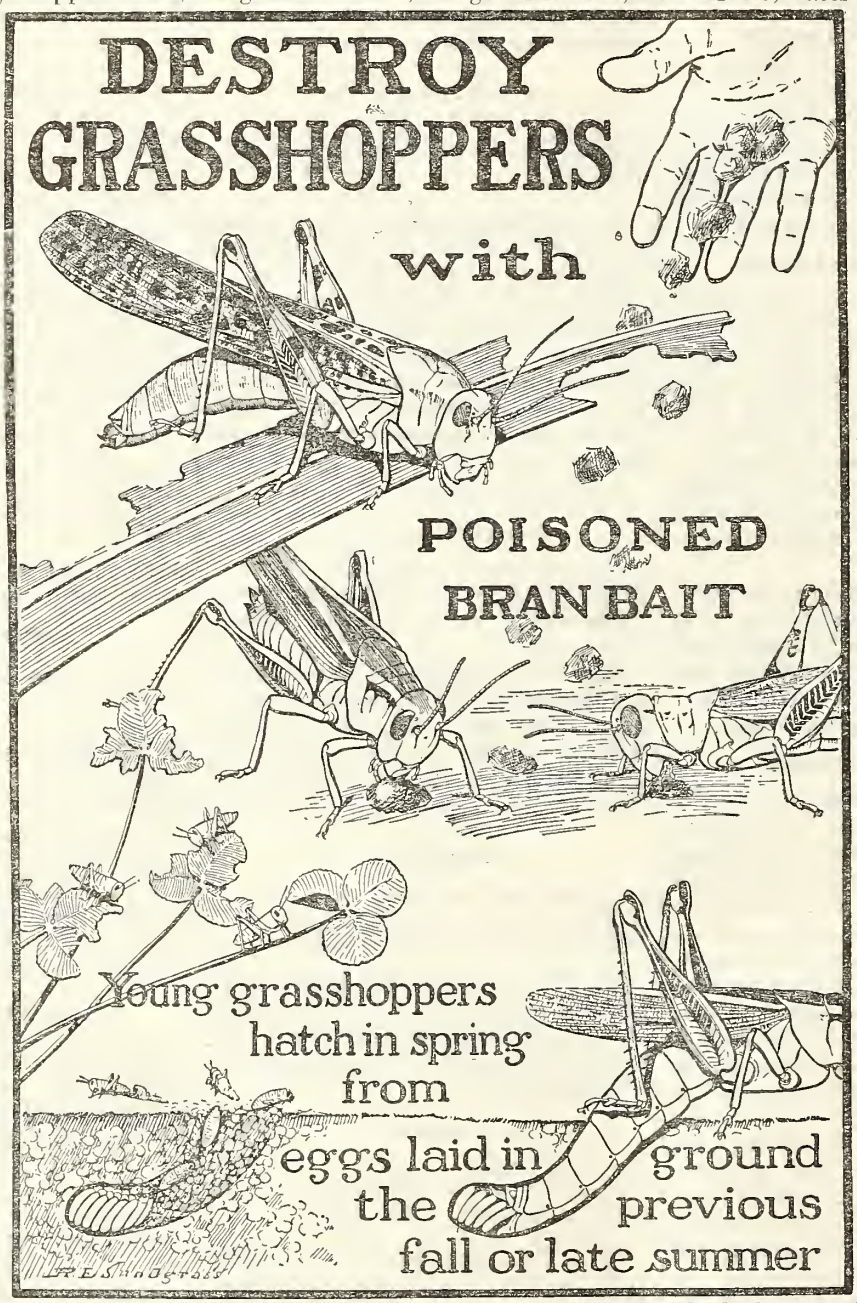
Slice bananas through the center, spread out on lettuce leaves and sprinkle liberally with chopped peanuts; serve with mayonnaise or plain salad dressing.

Let the table scraps help make eggs and meat. In every household, no matter how economical the housewife, there is a certain amount of table scraps and kitchen waste which has feeding value but which, if not fed, finds its way into the garbage pail. The saving medium: Some hens.

Each baked potato that you eat,
Will help to fill the ships with wheat.

How to Poison Grasshoppers

POISONED-BRAN bait has proved to be a simple, reliable, and cheap method of destroying grasshoppers. It is made up as follows: Wheat bran, 25 pounds; Paris green or crude arsenic, 1 pound; lemons or oranges, 6 finely chopped fruits; low-grade molasses, such as refuse from sugar factories, or cattle molasses, known as "black strap," 2 quarts; water, 2 to 4 gallons. The bran and poison are thoroughly mixed while dry, the chopped fruits are then added, and lastly the molasses and water are poured over the bait and the whole thoroughly kneaded. A coarse-flaked bran is most desirable, although where this can not be obtained easily ordinary middlings or alfalfa meal may be substituted. A low-grade, strong-smelling sirup or molasses is essential to the entire success of the undertaking. Crushed ripe tomatoes, watermelons, or limes may be substituted for the lemons or oranges, if necessary. In California and other semiarid regions water should be added to the bait at the rate of 4 gallons to 25 pounds of bran, as in these climates the bait dries out very rapidly and the extra moisture is necessary in order to attract the grasshoppers. Five to seven pounds of the mixture should be estimated per acre.



ANOTHER effective bait of similar character is the modified Criddle mixture. This is prepared as follows: Fresh horse droppings, one-half barrel; Paris green or crude arsenic, 1 pound; finely chopped oranges or lemons, 6 to 8 fruits; water sufficient to make a moist but not sloppy mash; mix thoroughly. As most people object to handling this mixture with the bare hands, a pair of cheap rubber gloves or a small wooden paddle may be used for the purpose.

Poisoned baits are distributed over the infested fields by sowing broadcast, either on foot or from a light wagon or buggy. In applying the poisoned bait in orchards, avoid distributing it close to the trees because severe injury to fruit trees occasionally results from heavy applications of arsenicals.

The time of day chosen for distributing the poisoned baits is important. In semiarid regions the bait should be distributed in late afternoon or early evening, just before the grasshoppers ascend the plants on which they usually pass the night. Apparently they are hungry and thirsty at this time and greedily take the bait if it be available. In the moister portions of the country, such as New England and Florida, the bait is best applied in the early morning.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1912

WEEKLY NEWS LETTER

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. V WASHINGTON, D. C., MAY 22, 1918. No. 42

Winter Wheat Yield of 572,000,000 Bushels, Department's Forecast

Secretary Houston Says with Towns' Help and Good Weather Farmers May Exceed 1917 Crop Records

But Promise for Future Does not Warrant Relaxed Efforts Both for Greater Production and for Greater Conservation—Farmers Doing Their Part—Condition of Crops

A production of about 572,000,000 bushels of winter wheat is forecast by the Department of Agriculture from the condition of the plant in the United States on May 1, which compares with a forecast of 560,000,000 made on April 1. The production last year was estimated at 418,000,000, and the average of the preceding 5 years was 553,000,000. The largest production ever recorded is 685,000,000 in 1914, and the smallest production of the past 10 years is 400,000,000 in 1912.

Of the acreage planted last autumn (42,170,000) it is estimated that 13.7 per cent, or 5,778,000 acres, have been abandoned, leaving 36,392,000 acres for harvest; this compares with 27,430,000 acres harvested last year, and 34,059,000, the average of the preceding 5 years. The largest acreage ever harvested is 41,308,000 in 1915, and the smallest of the past 10 years is 26,571,000 in 1912.

The Abandoned Acreage.

The abandonment of acreage (13.7 per cent) is heavier than the average (10.9 per cent for 10 years), and heavier than had been generally anticipated, although it followed logically a very low condition last December. Of the total acreage abandoned (5,778,000), 2,749,000, or nearly one-half, is debited to Kansas; four States—Nebraska, Kansas, Oklahoma, and Texas—contribute nearly four-fifths of the total acreage abandonment. In percentage abandonment the heaviest are 45 per cent in Texas and Wisconsin, 35 in New Mexico, 29 in Kansas, 24 in Michigan, 20 in North Dakota and Oklahoma, and 15 in New York. Although winter killing is the usual cause of abandonment, an important cause this year is the unusual dry weather last autumn and this spring, which prevented growth after a weak germination.

The acreage remaining improved during April, which was generally cool and moist, a condition favorable to wheat. The condition on May 1 for the United States, 86.4 per cent, compares with a 10-year average of 85.7 per cent. A month ago the condition of the plant was about 6 per cent below the average. The higher condition figure for the United States on May 1 is due partly to the elimination of the abandoned acreage this month in obtaining the average for the United States.

A report on spring wheat will not be made until June.

The average condition of rye on May 1 was 85.8, compared with 85.8 on April 1, 88.8 on May 1, 1917, and 90.2, the average for the past 10 years, on May 1. The condition May 1 forecast a production of about 82,620,000 bushels, compared with 60,145,000, last year's final estimate, and 48,862,000, the 1916 final estimate.

The average condition of meadow (hay) lands on May 1 was 89.6, compared with 88.7 on May 1, 1917, and a 10-year average on May 1 of 88.5. The expected hay acreage in 1918 is about 69,531,000 acres (53,605,000 tame and 15,926,000 wild). The May 1

(*Continued on page 6.*)

MEN WHO CAN HELP FARMERS

Each town, under the leadership of its most active spirits, such as its chamber of commerce or county council of defense, itself should immediately make a survey of all able-bodied men who have had farm experience and obtain pledges to spend a day or two out of each week, or a week if need be out of the month, at the periods of greatest demand, in order to help the farmers. There are many men working in the towns whose places can be taken by the women. I have in mind particularly men waiters, elevator boys, and clerks whose work can be well substituted, if the business sentiment of the town will act resolutely and persuade employers to use women temporarily in order that the men may be released for farm labor as the occasion may require.—Clarence Ousley, Assistant Secretary of Agriculture.

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STOCKS OF GRAIN, FLOUR, AND MEAL IN U. S. APRIL 1, 1918

Food Survey Shows 29,124,278 Bushels of Wheat in Commercial Stocks

Report Does not Cover Wheat on Farms, but Information Indicates Larger Amount Than was Held a Year Ago—Other Cereals

Commercial stocks of wheat reported to the United States Department of Agriculture in a food survey dated April 1, 1918, amounted to 29,124,278 bushels, according to a statement just issued by the Bureau of Markets. This amount was held by 8,876 firms consisting of elevators, warehouses, grain mills, and wholesale grain dealers and was slightly less than 38 per cent of the stocks held by the same firms on April 1, 1917. The commercial visible supply figures for the nearest date, as published by the Chicago Board of Trade, namely, April 6, 1918, showed only 4,695,000 bushels as against 47,363,000 bushels a year ago, while Bradstreet's reported 10,180,000 bushels on hand March 30, 1918, as against 48,525,000 bushels for the same date a year earlier.

Farm Stocks Should Be Considered.

It is pointed out that the comparative figures thus shown for the commercial stocks of wheat this year and last should be considered in connection with the stocks still remaining on the farms. No figures are available with reference to the estimated stocks on farms for April 1. However, figures previously issued by the department show that the estimated stocks on farms for March 1, 1918, were greater than for the same date a year earlier, being 111,650,000 bushels, as against 100,650,000 bushels. At the same time the movement of wheat to the 11 primary markets, according to trade figures, was considerably greater in March, 1917, than in March this year, being 20,062,000 bushels, as against 5,304,000 bushels. These figures indicate, it is stated, that the stocks of wheat remaining on farms April 1 this year were greater than those of a year ago.

The survey covered commercial stocks of wheat, corn, oats, barley, and rye, together with flour and flour substitutes. Data for

stocks on hand April 1, 1917, as well as present stocks, were obtained.

The stocks of other cereals reported were, in round figures: Corn, 33,000,000 bushels; oats, 46,000,000; barley, 14,000,000; and rye, 4,000,000. These figures represent the following percentages of the April 1, 1917, stocks: Corn, 104 per cent; oats, 76 per cent; barley, 142 per cent; and rye, 130 per cent. Hence, while the commercial stocks of wheat and oats were considerably less on April 1, 1918, than on April 1, 1917, the commercial stocks of corn, barley, and rye were larger.

Wheat Flour and Substitutes.

The wheat flour, including a small quantity of whole wheat and graham flour, amounted to 2,318,847 barrels, reported by 8,488 firms. This amount was 84 per cent of the stocks held one year ago. The stocks of wheat-flour substitutes, namely, of flour and meal from grains other than wheat, were all considerably larger than those of a year ago. Of these wheat-flour substitutes the stocks of corn flour and meal, amounting to a total of 35,000,000 pounds, is by far the most important item. This amount represents nearly 200 per cent of the commercial stocks of corn flour and meal on hand April 1, 1917.

Fortify with Silage Against Winter and High-Priced Feed

"Don't forget your silo," is advice to the beef-cattle farmer by specialists of the United States Department of Agriculture.

In every case, the specialists say, a sufficient acreage to provide crops to fill the silo should be provided by beef-cattle farmers. This will assure that the silo investment will yield its proper annual return and prevent losses coming from giving the cattle more expensive feeds. The cheapness with which cattle can be fitted for market or carried through the winter with silage insures that well-filled silos will be a paying investment.

It is a good farm practice, the specialists say, to put more acreage to silage crops than it is estimated under ordinary conditions will be necessary to fill the silo. Dry weather or a hailstorm at the crucial stage of growth may cause a marked decrease in the tonnage yield. For the South a few extra acres should be planted to sorghum to meet this probable shortage.

Very often the price of land in a community is largely regulated by the number and character of the weeds present.

Potatoes served three times a day,
Will ship the wheat across the way.

How a Left-Over Pig Boosted The Membership in a Boys' Club

A mistake made in ordering pigs for a pig club in California last year resulted in a boy being richer in money and practical experience at the end of the season. When the pigs were assigned to the members there was found to be one extra Duroc Jersey sow. This sow stood in its crate on the station platform unclaimed for a day and a night. The next morning Jesse Carr, who had made no preparations to join the club, adopted it, and it was thus, purely by accident, that he entered the contest and embarked in the pig-growing business.

The future did not look very promising for the pig. Jesse knew absolutely nothing about pigs, according to his own confession, but in spite of this disadvantage he entered the contest with the enthusiasm that often brings success. He hastily constructed a pen on the side of the hill where he lived, and in this new new home the sow raised her family of pigs.

Jesse was handicapped by his lack of knowledge in caring for the pigs, and did not give them enough nor the proper feed that insures satisfactory growth. His grandfather, however, came to the rescue, and through his help Jesse learned to feed the pigs so that they developed rapidly.

When the pigs were three months old he took them from the sow and put them in a movable pen in an alfalfa pasture. From time to time this pen was moved so that the pigs were able to keep well filled on this excellent forage crop. They were kept on this pasture until they were sold.

Now Jesse has a good start in the pig business. He has one boar of the first litter and all the pigs of the second litter. Beginning a year ago with no knowledge of pigs whatever he is now rich in practical experience, is an active pig club booster, and has a good start on the road to success in growing pigs.

STRAWBERRIES NEED MORE CARE IN HANDLING AND SHIPPING

Need for improvement in present handling and transportation practices in the strawberry trade—an $18,000,000 business—was shown by recent investigations by the United States Department of Agriculture in northwestern Arkansas and southwestern Missouri. Recommendations are contained in the report of the investigations recently published by the Bureau of Markets of the Department.

The studies were limited to the strawberries grown in the Ozark region, but the results obtained are applicable to all strawberry-producing regions, the report says. The work, conducted in the season of 1917, was made possible through the assistance and cooperation of railway lines operating in the territory covered and of the leading strawberry-shipping organizations.

The following summary is given in the report:

1. Careful picking and handling of strawberries to prevent bruising and mechanical injuries is of fundamental importance. Prompt and thorough cooling is necessary to reduce losses from decay in transit.

2. The use of salt immediately after loading and again at the first reicing, about 12 hours later, is desirable in order to hasten the rate of cooling when cars can be had which are equipped with false floors, basket bunkers, and solid insulated bulkheads. About 2½ per cent of the ice capacity of the bunkers at the first application and 1 per cent at the second is advised unless the temperature of the fruit when loaded is lower than 60° F., in which case less salt should be used.

3. Loading crates higher than four layers in the car is to be avoided as far as possible in cars of standard length. Extra space in the center of the car can be eliminated by bracing with wedges instead of using long bracing strips.

Another County Organizes for Handling Its War Problems

Secretary Houston has received the following telegram from R. L. Milton, president of a newly organized farm bureau in Stafford County, Kans.:

"The farmers of Stafford County, Kans., have to-day completed the organization of a farm bureau for greater efficiency in handling the agricultural problems of the county and now tender their united services in whatever patriotic effort you may request of them."

To this message Clarence Ousley, acting Secretary of Agriculture, replied as follows:

"May I not express to you the satisfaction which your telegram of April 25 conveys to the Department of Agriculture? It is pleasing to know that the farmers of Stafford County, through the farm bureau organization, are preparing to serve the Nation patriotically and efficiently. It is only when our country's agriculture is so organized and when the farmers enter heartily into the development and execution of our agricultural program that the greatest success can be achieved."

UNMARKETABLE POTATOES MAY BE FED PROFITABLY TO STOCK

Four Pounds, Cooked, Equal One Pound of Corn for Fattening Swine

Feed in Limited Quantities, Specialists Advise, and Remove Sprouts First—Raw for Cattle and Sheep if not Given in Excessive Amounts

In some parts of the country, where potato production was large last year and potatoes were held in storage to be sold late in the winter or early this spring, more potatoes are now on hand than will be moved to market. This situation doubtless exists despite the continued efforts of the Food Administration and the Department of Agriculture to have these potatoes marketed earlier in the year. On some farms it will be found necessary to feed potatoes to live stock.

Usually the market value of potatoes as food for man exceeds their value as feed for live stock, but with high prices ruling on grain and with a surplus of potatoes in many localities, which are unmarketable except at low prices, or perhaps not at all, this excess supply may bo fed profitably. Certainly it will pay to dig the potatoes out of pits or bring them out of cellars to feed rather than to let them spoil.

Gives Variety to Ration.

The cooked potato is very palatable, and in addition to its food value it gives variety to the ration and serves as a succulent feed. Experiments have shown that 4 pounds of cooked potatoes are equal to 1 pound of corn for fattening swine. Limited quantities may be fed to poultry with good results. Potatoes may be fed raw in limited quantities to cattle and sheep. If ordinary care is used in feeding the potatoes, to see that they are not spoiled, and are not fed in excessive quantities, the results should be gratifying. Unripe potatoes and potato sprouts are dangerous for feeding live stock, and if the potatoes have sprouted the sprouts should be removed before the potatoes are fed.

SOUTHERN FARMERS WHO GREW FOOD SURPLUS REAP PROFITS

Sections of the South which produced a surplus supply of food are reaping a rich harvest. Money is constantly coming into such sections for food products and is being paid to the farmers, and those same farmers are spending but little money for food. The contrary situation exists in sections which failed to produce their own food and feed last year and are relying entirely upon cotton. Such sections are spending their cotton money at the present time for food and feed; the money is not coming in but is going out.

The town of Luverne, which is the county seat of Crenshaw County, in South Central Alabama, is in a section which has been invaded by the boll weevil, but the farmers are prosperous because they are paying a great deal of attention to food and feed crops and especially to live stock. The shipping records show that Luverne has shipped since October of last year 23 carloads of corn, 83 carloads of velvet beans, 67 carloads of peanuts, 75 carloads of velvet-bean meal, 25 carloads of hay, and 128 carloads of cattle and hogs. The cattle and hogs shipped from Luverne since January 1 have brought the farmers $300,000 in money which has been paid direct to them. There are six other good shipping points in the same county. Farmers generally in that territory are in a good financial condition and have plenty of meat, corn, and other food and feed to carry them over until they make the crop of 1918.

WOOL STOCKS IN U. S. MARCH 31 REPORTED BY BUREAU OF MARKETS

Stocks of wool held by dealers and manufacturers in the United States on March 31, 1918, amounted to about 427,000,000 pounds, grease wool equivalent, according to the quarterly wool report just issued by the Bureau of Markets of the Department of Agriculture. This figure compares with 585,000,000 pounds on June 30; 636,000,000 pounds on September 30; and 562,000,000 pounds on December 31, 1917. Imports during January, February, and March of this year amounted to 111,378,688 pounds including mohair and alpaca.

Stocks on March 31, 1918, in pounds, by classes were: Grease, 222,814,951; scoured, 46,559,630; pulled, 27,844,141; tops, 19,671,-821; and noils, 17,441,316.

Total manufacturer's stocks by States for all classes of wool, in pounds, were: Massachusetts, 75,814,423; Rhode Island, 25,423,-640; Pennsylvania, 22,344,535; New Jersey, 20,849,312; New York, 18,983,901; Ohio, 7,504,326; Connecticut, 6,007,968; Maine, 5,777,357; New Hampshire, 3,367,860; and other States, 10,109,316.

Stocks of all classes of wool held by dealers in seven leading cities, in pounds, were: Boston, 91,166,907; Philadelphia, 20,085,895; Chicago, 6,291,619; New York, 5,833,540; Portland, Oreg., 4,158,609; St. Louis, 1,528,298; and San Francisco, 406,530.

Out of a total of 1,113 dealers and manufacturers 845 held stocks of wool on March 31, 1918, 256 reported no wool on hand, and 12 failed to return schedules.

SOY BEANS, USED LIKE NAVY KIND, MAKE VALUABLE FOOD

Ancient China's Product Can be Served in Numerous Desirable Ways

Schools of Cookery and Department of Agriculture, Develop New and Palatable Dishes From Crop Formerly Used Largely for Forage

While the soy bean has been grown in the United States primarily as a forage crop, its availability as a valuable food for human beings is being given increasing attention. Many schools of cookery and domestic science in this country, as well as home economics experts and home-demonstration agents of the United States Department of Agriculture, have shown that dried beans can be used successfully in the same manner as navy beans. The variety and palatability of the ways in which the beans can be served make tham a desirable article of food.

How to Prepare Soy Beans.

When prepared like the ordinary field or navy beans, the soy beans should be soaked for 10 or 12 hours or more, if necessary, and boiled slowly. The boiled soy beans, like boiled navy or field beans, may be seasoned and used as the principal part of a meal, as they are or may be made into bean loaf, bean croquettes, or other dishes.

When soy beans are three-fourths or more grown, the seed make a palatable and nutritious green vegetable.

Soak First, Then Crush.

If the dried beans (yellow or yellowish-green varieties) are soaked for a few hours then finally crushed (as in a meat grinder) and boiled in three times the amount of water as of bean material for about 30 minutes, a milky emulsion is obtained which is similar in appearance and properties to cow's milk. The addition of either magnesium chlorid or calcium sulphate (about a 1 per cent solution) to soy-bean milk precipitates some of the proteid substances, forming a grayish-white curd which settles out, leaving a yellowish watery liquid. This curd, after being drained and pressed, represents the tofu or bean curd extensively eaten in China and Japan. Soy or shoyu sauce is a dark-brown liquid prepared from a mixture of cooked and ground soy beans, roasted and pulverized wheat or barley, salt, and water, inoculated with a culture known as rice ferment and left in casks to ferment for six months to a year or longer. The liquid obtained is used in many countries, including the United States, as a sauce for meat or vegetables.

Food Administration Reports on Binder Twine Situation for 1918

The Food Administration contributes the following:

Farmers are earnestly requested to place their orders for binder-twine requirements as soon as possible, so that the local dealers can provide by early shipment for an adequate supply of twine to meet their harvest requirements. Shipping conditions are such that more time must be allowed from factory to local distributing points to avoid danger of shortage in supply.

The prewar price for sisal averaged about 7 cents per pound. It was 7½ cents landed at ports of entry on June, 1916. In July of the same year it was increased to 10 cents and held about at that point until December, 1916, when it rose rapidly to 16½ cents in March, 1917. Last August it reached 19 cents Gulf ports and 19¼ cents delivered New York.

Prevent Further Rise in Price.

It was at this period that the United States Food Administration decided to act, because of a report that another rise in price was contemplated. Through the efforts of the United States Food Administration a further rise in price of sisal was prevented. We have been trying since to get a lower price, but our efforts so far have not been successful.

In view of the exorbitant price exacted by the Comision Reguladora, the Yucatan monopoly controlling sisal, therefore, and as a result, the sisal used in the manufacture of binding twine, rope, and for other purposes will be much less this season than in previous years. As a result, the stock of sisal in Yucatan is rapidly increasing, while the demand in the United States is rapidly decreasing.

The Comision Reguladora and the planters of Yucatan must realize sooner or later that more reasonable prices must be made or the sisal business will be completely curtailed. Therefore, we still hope for more reasonable prices.

Makes Effort to Provide Twine.

Every effort possible has been made to provide binding twine for the harvest season of 1918 as low as possible under the circumstances, and for the accomplishment of this end the United States Food Administration entered into an arrangement to purchase and distribute to the manufacturers all of the sisal actually required for the manufacture of binding twine. It also entered into a contract with the binder-twine manufacturers, the terms of which provide that the United States Food Administration shall purchase and distribute the sisal as required, and that the manufacturers shall manufacture it into binding twine on a basis of the cost of raw material plus cost of conversion plus a reasonable profit, the reasonableness of which to be determined by the United States Food Administration.

In conformity with these arrangements, the manufacturers have made semimonthly reports of the amount of binder twine manufactured from sisal allotments and from other materials, and after careful investigation by the United States Food Administration, supplemented by investigations of the cost of manufacture by the Federal Trade Commission, the cost of 500-foot twine was established at 23 cents f. o. b. factory, other grades in proportion.

Ample Supply Assured.

The retail dealers have also agreed to distribute the twine to the farmers on a basis which, considering the necessarily high price of twine, does not seem unreasonable. An ample supply of binder twine is assured, therefore there need be no uneasiness about the supply of twine in time to meet harvest requirements.

The United States Food Administration solicits the cooperation of manufacturers, retail dealers, and farmers during these trying times.

STOP TRAFFIC IN WATERED SPINACH

United States Department of Agriculture will take steps to prevent certain packers from shipping interstate canned spinach containing excessive amounts of brine. Purchasers of such an adulterated product are required to pay food prices for extra salt water. The practice also wastes cans and uses excessive transportation space.

Good canning practice prescribes that spinach should be packed solid without more liquid than is necessary in processing. Loading with excess water fortunately, officials state, is the exception.

SELF-DEPENDENCE NECESSARY

We will not win this war unless States and communities rise to the emergency of solving local problems without dependence upon Washington. This is true State sovereignty and local self-government and is effective loyalty to the Nation.—Assistant Secretary Ousley.

MARKETING OF BRED SOWS ON DECREASE, REPORTS SHOW

Rumor of General Tendency to Sell for Slaughter without Foundation

Inquiry by Department of Agriculture Indicates that Number of Brood Sows Retained on Farms Has Increased by About 10 Per Cent

Reports from the large live-stock markets to the United States Department of Agriculture indicate that the rumor of a general tendency to sell bred sows for slaughter is without foundation. At most of the stockyards the percentage of sows docked for advanced pregnancy has decreased since the first of the year and is smaller for the first three months of 1918 than for the corresponding months of 1917. At a few markets a larger percentage of sows than normal showed advanced pregnancy, but this appears to have been due to delays in getting cars for shipments. Such a showing in normal times or in the absence of special propaganda for increasing the national meat supply probably would not have been noticed. The United States Department of Agriculture, after diligent inquiry, concludes that not only has there been no increase in the marketing of brood sows, but that the number of brood sows retained on farms has increased, certainly by about 10 per cent.

Dockage on Delayed Shipments.

The territory tributary to the Missouri River markets is the only section in which there appears to be any ground for the fear that an unusually large number of bred sows were marketed, and the explanation for that section is that, owing to inability to get freight cars, shippers who would have marketed their hogs in December were forced to hold them until late in January and, in some instances, until well in February. It is the general practice of feeders to breed all sows as soon as possible after they are turned into the feeding lot. If such sows are marketed promptly, no dockage is incurred, but when there are delays dockage for advanced pregnancy results. Under such circumstances a considerable increase in dockage does not indicate a tendency to sell brood sows for slaughter.

HIGHWAYS SHOULD CARRY FREIGHT

It is well known that the railroads of the United States are unable to carry the enormous traffic now offered for transportation, and it is to be expected that the public roads will from now on have added to their present traffic burdens such freight as may be shifted to them to relieve railway congestion.

SHIP BUILDERS NEED BLACK LOCUST WOOD FOR TREENAILS

Farmers Having Supplies Should Get in Touch With Fleet Corporation

Special Need of Shipyards Offers Opportunity to Owners of Small Woodlots—Government Aiding Manufacturers in Finding Material

Farmers who have good locust timber, suitable for the manufacture of ship treenails, will do well to communicate with the purchasing division of the Emergency Fleet Corporation, which announces that it will give prompt attention to inquiries from those wishing to be put in touch with treenail manufacturers.

Great Quantities Needed.

The shipbuilding program of the Government has enormously increased the demand for treenails, or "trunnels," which are used in wooden ships much as dowels were used in old-fashioned frame construction work. They are huge wooden nails, from 2 to 4 feet long, which fasten together the planking or outer shell of the hull, the frames, or skeleton, and the ceiling, or inner shell. Most of the treenails used in this country are made of black locust, or yellow locust, as the tree is often called. They must be made of straight-grained wood, which combines density, hardness, strength, and durability, which does not shrink much, and will not split readily; and locust is preeminently the wood that fills the bill.

Encourages Offers from Small Owners.

Black locust does not grow in great stands, but must be picked up in relatively small quantities, so that the shipyard demand opens the door to the marketing by farmers of wood-lot timber of this species. By doing so they may contribute to the war-time needs of the country and thus help down the Hun, and at the same time convert into ready money some of the value that their growing timber has accumulated. Forest-grown locust of a good grade is the most desirable from every standpoint, although some manufacturers buy the field grown if found in sufficient size and quantity to warrant handling.

Wooden shipyards are now busy from Maine to Texas as well as on the Great Lakes and the Pacific coast, and as each ship takes from 20,000 to 50,000 treenails the manufacturers who supply the yards are naturally out for supplies of locust. While several kinds of wood may be used, to the extent that black locust is obtainable it is preferred. Honey locust will not do for treenails, as it is too porous. The Emergency Fleet Corporation, which is purely a Government organization, is assisting the manufacturers of treenails to find their raw material, and has been instrumental in developing large supplies since the war program of shipbuilding was entered upon. It is anxious to bring together the owners of suitable standing timber and the manufacturers operating in their territory.

Production and Buying of Treenails Centralized.

Making treenails is distinctly a business in itself. There is a very large percentage of waste in manufacture, partly because locust is a very defective wood and partly because the shipbuilding specifications are very exacting. Most if not all of the manufacturer's profit is likely to come from knowing how to dispose of such material advantageously. The individual farmer or small millman is seldom in a position to do this. Farmers having locust to dispose of will therefore do best to get in touch with some established treenail manufacturer.

The production of treenails has been divided up into districts so that each manufacturer ordinarily draws his supplies from a definite territory. In consequence the seller of locust timber for treenails has usually but one market available. The manufacturers receive their orders for treenails from the purchasing division of the Emergency Fleet Corporation, in which is centralized the buying for all shipyards. These orders are placed on terms which permit the manufacturers to pay reasonable prices for their raw material.

How to Market Locust.

What the farmer can expect to get for his locust will vary with the grade of the timber and the cost of laying it down at the mills. Some manufacturers buy the timber on the stump, others by the cord or thousand feet, in which case the farmer can do the cutting himself. Selected stock will bring the best prices, especially when the manufacturer has drawn his specifications high so as to get the best grades only.

Owners of locust desiring to be put in touch with a treenail manufacturer should address the Purchasing Division, Emergency Fleet Corporation, Washington, D. C. Full information should be given as to the nature of the timber, its approximate quantity, and the location with reference to the nearest shipping point. The name of the railroad serving the shipping point should also be given.

Let Sweet Clover Bloom on Wastes—Increase Honey and Sugar Supply

Let the sweet clover grow this year in vacant lots along roadsides and along railway rights-of-way until after the blooming season. Thus provide more nectar for the honey bees and eventually more substitutes for sugar. This appeal is made by the United States Department of Agriculture.

Sweet clover, recognized by beekeepers for many years as a valuable honey plant, has been considered a weed in many places. City, county, and railway authorities as well as farmers have cut the plants before the blooming season, thus preventing them from maturing seed.

It is admitted that sweet clover will make a vigorous growth if unmolested, many of the plants reaching a height of 6 feet, but it is not difficult to eradicate, and sweet clover recently has become well known as a valuable forage plant. Thousands of acres in some sections of the country are planted annually to grow forage crops, and results have justified the rapidly increasing acreage.

The United States must not only increase sugar production for domestic needs, but must ship an increased quantity to the allies. Every effort should be made this year to stimulate production of substitutes for sugar. In localities where sweet clover is growing abundantly, city, county, and railway officials are asked to cooperate with beekeepers and see that all well-known nectar-producing plants, and especially sweet clover, are not cut until after the blooming period. This plan was practiced in at least one locality last year with gratifying results, and it is hoped that all sweet clover growing within a mile of colonies of bees will be permitted to stand until after the blooming period this year.

Sweet clover not only produces an abundant flow of nectar over a long period but does not begin to bloom until the white clover and alsike clover nectar flowing is nearly over, thus supplying an abundance of nectar when few nectar-producing plants are in bloom. Owners of bees are advised to make every effort to bring the importance of sweet clover to the attention of officials in charge of mowing plants in vacant lots, along roadsides, and along the rights-of-way of railways, and to endeavor to have the mowing of such places where sweet clover is growing delayed until the flowering period is past. By hearty cooperation to this end, the department says, the production of honey can be considerably increased this year.

Gain in Farm-wage Rates in 1917 Shown in Report from Department

Definite information concerning the great increase in the wages of farm labor last year has been provided by the United States Department of Agriculture in a recent publication. Wage rates per month in hiring by the month or season with board in 1917 ranged from $21.88 in the South Central States to $36.23 in the North Central States west of the Mississippi River and $44.25 in the Western and Pacific, with a national average of $28.87. Without board, the monthly rate for the United States was $40.43, with a range from $30.80 in the South Atlantic States to $49.46 in the West North Central and $63.59 in the Western and Pacific. Harvest wages with board were as high as $2.77 per day in the West North Central States and as low as $1.55 in the South Atlantic, while the United States average was $2.08. The rates without board were 35 to 59 cents higher in the various sections.

Monthly Wages Increase 24 Per Cent.

Outside of harvest, day rates of wages with board ranged from $1.17 in the South Atlantic States to $1.91 in the North Atlantic and $2.03 in the West North Central, and the United States average was $1.56. Without board, the rates were 35 to 95 cents higher.

As a general average for the whole country, the increase in the rate of wages per month with board in 1917 over 1916 was 24.2 per cent. The increase over 1910 was 50.3 per cent. In the average rate of wages for harvest labor with board, the increase in 1917 over 1916 was 23.1 per cent; without board, 22.7 per cent. For day labor outside of harvest, farmers paid 23.8 per cent more with board and 24.7 per cent more without board. The general fact is that the rates of wages for farm labor increased almost one-quarter in one year and about two-fifths to one-half in seven years.

The lowest relative advance in rate of wages from 1916 to 1917, 12 per cent, is found in the Western and Pacific States in hiring by the day with board for work outside of harvest; and the highest, 36.1 per cent, in the South Atlantic in hiring by the month with board.

When Labor was Easiest to Get.

Difficulties of obtaining labor were more generally least in temporary service in harvest and more generally greatest in similar service outside of harvest. To obtain laborers for a whole season or a year with board throughout the various groups of States was easiest in the East North Central, most difficult in the South Atlantic. Hiring by the day was the easiest proposition in the Western and Pacific when with board and most difficult when without board.

The South experienced the greatest effects of the increase of farm wages in 1917 over 1916, expressed as a percentage of increase, but the greatest effects in terms of absolute increase in dollars and cents were felt in the other great groups of States, most of all in the Western and Pacific, next below in the North Central, and third in order in the North Atlantic group. The largest absolute increase in wages in the South was in the South Atlantic States in hiring by the month or season with board. Monthly wage rates increased absolutely in the average for the United States by $5.33 in seasonal or yearly contracts when without board, and $5.62 when with board. Day wage rates increased by 30 to 47 cents in the several varieties of contracts.

Farmers found a trying situation in 1917, when their needs for farm labor increased and the supply of labor diminished, with accompanying advance of wage rates over those of 1916, averaging 24.2 per cent for all classes of rates. During the same time the prices paid by them for 94 articles of common use on the farm, by the family, and in the household increased 30 per cent and the prices received by them for their crops increased 60.7 per cent.

Winter Wheat Yield of 572,000,000 Bushels, Department's Forecast

(Continued from page 1.)

production forecast is 107,550,000 tons, compared with an estimated production of 94,930,000 tons in 1917 and 110,992,000 in 1916.

Of spring plowing 77.5 per cent was completed up to May 1, compared with 72.4 per cent on May 1, 1917, and a 10-year average on May 1 of 69.4.

Of spring planting 60.8 per cent was completed up to May 1, compared with 58.7 per cent on May 1, 1917, and a 10-year average on May 1 of 57.5.

Commenting upon this favorable report of crop conditions, Secretary Houston said:

"With favorable weather and with a supplement of man power from the towns and cities to help in farm tasks of particular strain, especially in harvesting, there is every reason to anticipate increased yields of farm products in the United States this year over the record production last year, but," the Secretary added, "the promise for the future does not in the least warrant relaxed efforts both for greater production and for greater conservation. The increases should be reassuring to consumers and a matter of encouragement to farmers that they can again overcome difficulties. There is a continuing need for large supplies of food and feed products, not only for our own population but for the allies in Europe, who will depend more and more on this country.

"The farmers last year responded generously to the patriotic appeal of the President, the Department of Agriculture, the State colleges of agriculture, and other public agencies by planting and harvesting the largest acreage in crops on record in this country. Since July of last year the Department of Agriculture, in cooperation with the agricultural colleges and other State and local organizations, has labored unceasingly to maintain and, if possible, to increase in 1918 the record acreages of 1917 with necessary adjustments especially to provide for larger production of wheat and other bread grains which are most needed.

"The results of the department's efforts are now becoming apparent. While the official estimates of acreage, condition, and prospective yields and production of other crops are to be made later, and therefore can not be anticipated, the department has a complete organization for quickly and accurately ascertaining what is taking place on farms, and the reports received through this organization and from other sources indicate that the total acreage planted will show a substantial gain.

Indicated Crop Increases Gratifying.

"The indicated increased acreage in food crops this year over the record crop of 1917 is gratifying. An increase over the record for peace times would have been striking in view of all the difficulties. The vigorous efforts of the farmers evidence their patriotic determination to help win the war. Reports indicate that in order to plant larger acreages with less help than ever before farmers are working from early dawn until black darkness, utilizing to the fullest capacity all their man power, family power, horsepower, and machinery, and setting an example of extraordinary exertion and efficiency which might well be followed in other essential industries. The work of the farmers and of the agricultural agencies is not spectacular and does not catch the public eye, but it is nevertheless unceasing and effective and is as vitally important as any other service rendered in the Nation in this emergency. American farmers are entitled to and should receive the fullest credit, appreciation, and recognition. They and their families are doing and will continue to do their utmost to help win the war for human freedom against the outlaws of the military autocracy of Europe which threatens all that is held most dear and sacred by civilized peoples.

"Farmers have done and will continue to do their part. They have planted gener-

ously. They will need the assistance in cultivation and harvesting of many additional laborers. The critical factors in crop production after planting will be weather and labor. Weather is beyond human control, but the necessary labor for cultivating and harvesting the food crops planted by the farmers of this country must be supplied when and where most needed.

"The Departments of Agriculture and Labor are cooperating and are taking every step possible to help the farmers secure labor. It now devolves upon the cities and towns to lend assistance. This duty exists in peace times, because the urban communities are vitally dependent upon the back country for their very existence; some owe their very being to the surrounding rural districts. In this emergency they must labor with other agencies to see that the crops are cultivated and harvested. I trust that the thoughtful people of the towns and cities will realize that the farmers can not work miracles, and that upon the cities rests the responsibility of furnishing the necessary supplement of man power."

Give Garden "Place in the Sun"—Much Shade is Fatal to Plants

Most garden vegetables will not make a satisfactory growth where they are shaded during even a part of the day, according to the garden specialists of the United States Department of Agriculture. It is extremely difficult to find space in the city backyard where there is not some shade at least a portion of the daylight hours. Such plants as lettuce, onions, and plants raised for their leaves can be grown in considerable shade, but beans, tomatoes, beets, peas, corn, and carrots must have a fair amount of sunshine if they are to amount to anything.

It would be a waste of costly seeds to plant most garden crops on the north side of the house or near a high board fence that would effectually shut out the sunlight. Those who can not provide a plat of ground in the sunshine are advised to confine their gardening to the few crops that will make a fair growth in partial shade.

GOOD ROADS CENTRALIZE SCHOOLS

That improved roads would benefit our country-school system there would seem to be no doubt. Good roads make it possible to consolidate or centralize the schools and to establish graded schools in the rural districts. Such schools centrally located will accommodate all of the children within a radius of 4 or 5 miles. In many communities having the advantage of improved roads commodious buildings have been provided, more competent teachers employed, and modern facilities for teaching supplied at a minimum cost.

BARLEY FLOUR NOW ON MARKET GOOD SUBSTITUTE FOR WHEAT

Millions of Bushels, Formerly Fed to Stock or Malted, Milled for Bread

Specialists Give Tested Ways of Using It—Advise Buying in Small Quantities—Try It and You Will Want More

AN EXCELLENT WHEAT SUBSTITUTE.

Barley is a palatable, wholesome grain which has long been used in infant feeding and, to some extent, for general cookery, and which can now be used in quantity to save wheat. Barley flour is one of the best of the wheat substitutes. Delicious breads and cakes can be made by using it to replace all or part of the wheat flour.

The use of barley flour for such purposes, though new to most of us is not new to some people. Not many years ago barley was used more extensively than wheat for bread making in many of the European countries. Let us revive the art of barley cookery and, by so doing, "stretch" our supply of wheat flour so that it may go further to meet the needs of the allies.

Hundreds of millions of bushels of barley are raised yearly in the United States. This supply heretofore has been used chiefly for stock feed or for malting, but under present conditions the greater part of the crop is being milled into flour which, since it is both palatable and nutritious, may well be used to meet the increasing demand for wheat substitutes. This flour is now on the market, and it is a patriotic duty to use it to save the wheat flour.

Give barley flour a trial—you will wonder why it was not used more before the war.

Barley flour does not keep so well as wheat flour, so it is best to buy it in small quantities, even for home consumption.

The recipes which follow have been tested in the experimental kitchen of the Office of Home Economics of the United States Department of Agriculture:

Barley Hot Breads.

Barley flour is very satisfactory for hot breads.

Barley Quick Biscuits.

2 cups barley flour.	4 teaspoons baking powder.
½ teaspoon salt.	⅔ cup milk.
2 tablespoons fat.	

Barley Drop Biscuits.

2 cups barley flour.	4 tablespoons fat.
6 teaspoons baking powder.	1½ teaspoons salt.
	1 cup milk.

Baked in a sheet this makes a good shortcake buttered and served with fresh crushed berries or other fruit.

Barley Waffles.

2 cups barley flour.	1½ cups milk.
1 teaspoon salt.	2 eggs.
3 teaspoons baking powder.	3 tablespoons melted fat.

Sift the dry ingredients together and add slowly the milk, beaten egg yolk, and melted fat. Fold in stiffly beaten whites. Beat thoroughly and cook in hot, well-greased waffle irons.

Barley Muffins.

2¼ cups barley flour.	½ cup wheat flour.
1 cup milk.	1 tablespoon fat.
2 tablespoons corn sirup.	1 egg.
4 teaspoons baking powder.	¼ teaspoon salt.

Barley Spoon Bread.

1 cup barley flour.	1 teaspoon salt.
1 cup hot boiled hominy grits.	2 cups milk.
	2 eggs.
3 tablespoons fat.	2 tespoons baking powder.

Barley Yeast Bread.

If you use your own bread recipe and replace one-fourth of the wheat flour with barley flour you will be able to make a very good bread. With the present need of saving flour, it will be desirable for the housekeeper to make less yeast bread than usual, as one can not use so large a percentage of wheat substitute in making yeast breads as in quick breads.

Barley Pastry.

Very good pie crust can be made with all-barley flour or using one-half barley and one-half wheat flour. The first recipe is especially good for a one-crust pie.

Pie Crust 1.

1 cup barley flour.	⅛ teaspoon salt.
2⅔ tablespoons fat.	Cold water.

Pie Crust 2.

½ cup barley flour.	½ cup white flour.
⅛ teaspoon salt.	¼ teaspoon baking powder.
2⅔ tablespoons fat.	Cold water.
Two crusts.	

Barley Cakes and Cookies.

It is not necessary to go without cake when such delicious products can be made that use no wheat flour and but little sugar. In these recipes the housekeeper, if she prefers, can use cream of tartar with baking soda in the usual proportions in place of baking powder.

Chocolate Cake.

2 cups barley flour.	2 tablespoons brown sugar.
¼ cup fat.	1 cup corn sirup.
¼ teaspoon salt.	2 eggs, whites and yolks, beaten separately.
2 squares chocolate.	
½ cup milk.	1 teaspoon vanilla.
4 teaspoons baking powder.	

Sponge Cake.

1½ cups barley flour.	¼ teaspoon salt.
4 eggs.	2 teaspoons baking powder.
1 tablespoon lemon juice.	
1½ cups corn sirup.	

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LEARN REASONS FOR ERRORS IN WEIGHT OF PRINT BUTTER

Study in 400 Plants Enables Specialists to Recommend Remedies

Chief Causes Are Variations in Physical Condition of Butter, Incorrect Adjustment of Printing Machine, Bad Scales, and Carelessness of Operator

In order to assist butter manufacturers in complying with the Federal net weight law, the United States Department of Agriculture made a study in 400 butter-making establishments, weighing some 13,000 packages of print butter to determine the causes and methods of preventing the error in weight of butter sold in packages. The chief causes, which are discussed in detail in circular 95, Office of the Secretary, were found to be: Variations in the physical conditions of the butter, inaccuracies and incorrect methods of adjusting the printing machine, inaccurate scales, and carelessness of the operator.

The moisture and salt content of butter made under similar conditions vary from day to day, and are not uniformly distributed throughout the mass of butter even in the single day's churning, according to the circular. This lack of uniformity causes errors in prints which vary from 0.08 to 0.1 of an ounce per pound print, and although the variations from this cause are small they still contribute to the total error. The investigators found numerous cases of inaccuracy of scales, due to rust and dirt which had accumulated as a result of careless treatment and which caused a variance of several hundredths of an ounce per pound. Many scales were out of balance also, which emphasized the necessity of frequent adjustment.

To secure accurate pound prints, the circular recommends the following method of machine adjustment: Weigh at least 5 per cent of the prints made, weigh 5 to 10 packages together and check the weight four to five times at intervals during each churning, resetting the machine if necessary until proper weight is obtained. It is believed that with such a procedure the difference of the average weight from 16 ounces need not be more than 0.05 or 0.06 ounce if no other cause of error is present.

POTATOES WON'T MAKE YOU FAT

If you are doing your bit, do not fear for your figure. Eat well and look well. Potatoes won't make you fat. They supply energy for your war work. Use up the energy as fast as you can, and do not worry.

Write the United States Department of Agriculture for new potato recipes.

GARDEN CROPS WON'T THRIVE WITH WET FEET—CULTIVATE

Garden crops will not give good results unless the soil is kept well cultivated, say the specialists of the United States Department of Agriculture.

Cultivation is not intended primarily to kill weeds, although this is important, but to loosen the surface and let air into the soil so as to provide a more congenial environment for the roots of the plants. Plants in soil which is too wet turn yellow, and if not relieved by proper cultivation and drainage languish and die. Too much water in the soil dilutes the soil solution, impedes the formation of nitrate, destroys desirable soil organisms, and permits the development of undesirable ones.

Soil which has been too wet, if allowed to dry and bake, offers an environment as uncongenial for plants as when too wet. Either extreme, therefore, should be guarded against.

If the soil is naturally wet, provide surface or tile drains. If inclined to bake after rains, cultivate as soon as it is dry enough. As a rule, stirring the surface 2 inches will give better results than deep cultivation.

If the home garden is located near the kitchen door, the hoe and rake can be kept conveniently near so that odd moments can be spent in cultivating.

GARDEN TOOLS NOT EXPENSIVE

A large or expensive assortment of tools is not necessary for a home vegetable garden.

A spade, hoe, and rake are the only tools that are indispensable, say the garden specialists of the United States Department of Agriculture. A garden line can be improvised from pieces of twine, and two sharpened sticks will serve as stakes. A trowel can be fashioned from a piece of thin board or from a shingle, while a serviceable scratcher or weeder can be made by driving three slender nails through the end of a piece of lath. Another kind of good weeder can be made from a piece of hoop iron bent into a loop and one edge sharpened.

A wheel hoe, or combination wheel hoe and seed drill, is a splendid tool, and there are a number of small hand tools that are useful in the garden, but these are not essential.

Make the Garden Work All Summer—Plant a Succession

Plant garden crops so as to have a succession of vegetables—as many plantings as can be matured before killing frosts in the fall—say the garden specialists of the United States Department of Agriculture. The gardener who is content with but one crop does not get the maximum benefit from his land and labor.

The gardener who is uncertain as to when Jack Frost is likely to appear in the fall, and as to how far in advance of his appearance the last crops should be planted can find information on these points in "The Farm Garden in the North," Farmers' Bulletin 937, issued for free distribution by the United States Department of Agriculture.

This bulletin, which is offered to city gardeners as well as to those in the country and which contains information of equal value to both, has a zone map of the United States, based on the average dates of the first killing frost in autumn. By referring to the map, the approximate latest safe date for planting any crop in any of the various zones may be determined. The bulletin also contains a table giving the latest safe dates for planting vegetable seeds in the open in the Northern States and telling the period necessary for maturity of the various crops.

BARLEY FLOUR NOW ON MARKET, GOOD SUBSTITUTE FOR WHEAT

(Continued from page 7.)

Fruit Cake

2¾ cups barley flour.	½ cup corn sirup.
¼ cup fat.	¼ teaspoon soda.
3 tablespoons molasses.	1 teaspoon baking powder.
½ cup chopped raisins.	¼ teaspoon allspice.
¼ teaspoon cinnamon.	¼ teaspoon cloves.
½ cup chopped nuts.	⅛ cup citron.

Bake 1 hour and 10 minutes. Keeps moist and very good.

Gingerbread

1½ cups barley flour.	¼ teaspoon soda.
½ cup molasses.	1 teaspoon ginger.
½ cup milk.	1 teaspoon cinnamon.
2 teaspoons baking powder.	⅛ teaspoon salt.
	2 tablespoons fat.

Bake about 30 minutes in moderate oven. Good texture and flavor.

Hermits

2 cups barley flour.	½ cup corn sirup.
2 tablespoons fat.	¼ teaspoon salt.
1 egg.	½ teaspoon cinnamon.
½ teaspoon ginger.	¼ cup nuts.
¼ cup chopped raisins.	1 tablespoon milk.
1 teaspoon baking powder.	

Honey, maple sugar, or maple, beet, apple, or sorghum sirup, which can be made at home, can be used in the same way as corn sirup in the above recipes to save sugar.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. V MAY 29, 1918 No. 43

President Places Farm-Implement Industry Under License System

Proclamation of May 14 Names Those Who Must Secure Federal Permits by June 20

Secretary of Agriculture to Carry Out Regulations—Action Would Prohibit Unjust Profits, Attempts to Monopolize, Unreasonable Price Increases, and Other Evils

The President, by a proclamation signed May 14, 1918, requires all individuals, partnerships, associations, and corporations, except those specifically exempted by the food control act, engaged in the importation, manufacture, storage, and distribution of tools, utensils, implements, machinery, and certain other farm equipment, to secure Federal licenses not later than June 20, 1918.

Requirements of Licensees

The Secretary of Agriculture is directed to carry out the provisions of the proclamation and the regulations thereunder. Licensees are required to furnish information regarding their businesses whenever it is thought necessary by representatives designated by the Secretary, and must permit such representatives to inspect the property and records pertaining to their business. Information obtained in this manner is not to be disclosed without authority. Unjust profits, resales within the trade without reasonable justification, attempts to monopolize, unreasonable increase of prices or restriction of supplies, and willful waste of farm equipment are prohibited. Also licensees are forbidden to sell farm equipment to persons known to have violated the food control act.

Applications for licenses must be made to the law department, license division, United States Food Administration, Washington, D. C., upon forms prepared for that purpose.

To assist in the enforcement of the regulations, the Secretary of Agriculture has appointed Junius F. Cook, of New York, as assistant to the Secretary. Mr. Cook is to act as the immediate representative of the Secretary in the execution of the powers conferred upon the Secretary of Agriculture by the President's proclamation.

The President's Proclamation Licensing Farm-Implement Trade

Whereas under and by virtue of an act of Congress entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," approved by the President on the 10th day of August, 1917, it is provided, among other things, as follows:

"That by reason of the existence of a state of war, it is essential to the national security and defense, for the successful prosecution of the war, and for the support and maintenance of the Army and Navy to assure an adequate supply and equitable distribution and to facilitate the movement of foods, feeds, fuel, including fuel oil and natural gas, and fertilizer and fertilizer ingredients, tools, utensils, implements, machinery, and equipment required for the actual production of foods, feeds, and fuel, hereafter in this act called necessaries; to prevent, locally or generally, scarcity, monopolization, hoarding, injurious speculation, manipulations, and private controls affecting such supply, distribution, and movement, and to establish and maintain governmental control of such necessaries during the war. For such purposes the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred, and prescribed. The President is authorized to make such regulations and

(*Continued on page 4.*)

HOG LOSSES FROM DISEASE ARE LOWEST IN 35 YEARS

Death Rate Only 42.1 per 1,000, Department Records Show

Efforts in Combating Cholera Largely Responsible for Decrease—Losses in 1914, 7,000,000, as Compared to 3,000,000 for Year Ended March, 1918

The death rate in swine from all diseases for the year ending March, 1918, announced by the United States Department of Agriculture as 42.1 per 1,000, is the lowest in 35 years, according to the records kept during that period.

This unprecedentedly low rate of mortality presents a great contrast with those of earlier periods, particularly with the losses of 133.8 per 1,000 in 1887, 144 per 1,000 in 1897, and 118.9 per 1,000 in 1914, years marked by severe outbreaks of hog cholera. This is even a remarkable reduction from the normal low rate of losses which has remained slightly above 50 per 1,000 when the disease was least prevalent.

What Losses Mean in Meat.

The approximate number of hogs on hand January 1, 1918, was 71,374,000. The loss of 42.1 per 1,000 for the year ending March, 1918, therefore represented approximately 3,000,000 of these animals, equivalent to the consumption of pork and pork products by the entire population of the United States for 1917 for 25 days.

These recent losses should be compared with that of 7,000,000 hogs in 1914, which curtailed production to the extent of the national consumption for that year for 37 days.

The marked reduction in the losses of swine in 1918 over preceding periods, in view of the fact that 90 per cent of these losses are due to hog cholera, indicates clearly the benefit from the combined efforts of State and Federal agencies in protecting the farmers against the ravages of this exceedingly fatal disease.

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Farm Loan Board Announces 40,451 Loans to May 1, Totaling $91,951,886

During April $13,988,619 was paid out to farmers of the United States by the Federal Land Banks on long time, first-mortgage loans, according to a statement of the Federal Farm Loan Board. The Federal Land Bank of St. Paul closed loans during the month amounting to $2,870,300. The other banks made loans as follows: Omaha, $1,912,300; Spokane, $1,586,380; Houston, $1,514,844; New Orleans, $1,198,955; St. Louis, $1,016,035; Wichita, $768,900; Louisville, $756,700; Columbia, $737,605; Berkeley, $569,700; Baltimore, $538,100; Springfield, $518,800.

On May 1 the total amount of money paid out to farmers since the establishment of the Federal Land Banks was $91,951,886, covering 40,451 loans closed. The total amount of loans applied for up to May 1 was $299,984,835, representing 126,630 applicants, and in process of closing the amount was $174,858,616, which is awaiting abstracts of title, release of mortgages, or other formalities.

The grand total of loans closed is divided by Federal Land Bank districts as follows: Springfield, $2,876,045; Baltimore, $3,407,750; Columbia, $3,192,775; Louisville, $5,407,600; New Orleans, $6,091,315; St. Louis, $5,128,935; St. Paul, $15,424,900; Omaha, $11,438,390; Wichita, $11,191,700; Houston, $7,755,791; Berkeley, $5,806,900; Spokane, $14,229,785.

FOOD VALUE OF FISH PROVED WITH HEALTHY YOUNG APPETITES

Further evidence that fish deserves a place in every diet was obtained from a recent series of digestion experiments in the United States Department of Agriculture. These tests furnished scientific proof that fish, which has always been reckoned as a valuable food, is very completely utilized in the body.

In the experiments Boston mackerel, butterfish, salmon, and grayfish—a variety not generally used in this country—were made into "fish loaves" and served as a basis of a simple mixed diet to young men of healthy appetites.

Both the protein and the fat of the fish were well utilized. Following are the percentages of protein digested: Boston mackerel, 93.1 per cent; butterfish, 91.9 per cent; grayfish, 92.8 per cent; and salmon, 93.2 per cent. The percentages of fat digested were found to be: Boston mackerel, 95.2 per cent; butterfish, 86.4 per cent; grayfish, 94.3 per cent; salmon, 93.7 per cent.

In addition to the fish loaf the diet included potatoes, crackers, fruit, sugar, and tea or coffee. On the average the subjects, each day ate 440 grams of Boston mackerel, 471 grams of butterfish, 440 grams of grayfish, or 355 grams of salmon, indicating that in every case the fish was eaten with relish. The experiments are described in detail in Department Bulletin 649, "Experiments on the Digestibility of Fish."

The department recently has concluded an investigation of the commercial freezing and storing of fish, and a bulletin just issued on that subject (No. 635) says that this method of preserving fish will hold them for many months in the condition in which they were received, but will not counteract deterioration due to previous heating or mishandling. Chemical analyses show no significant changes in frozen fish held for 27 months—much longer than would be necessary or profitable in storing fish commercially.

AIDS MARKETING OF TEXAS ONIONS.

The crop of Texas Bermuda onions which will soon be ready for market is of large proportions, and the Bureau of Markets of the United States Department of Agriculture will make special efforts to aid these growers to market their crop so as to prevent congestion in certain market centers.

The total acreage planted in Texas in 1918, as shown by the Bureau of Crop Estimates, is 18,188 acres, as compared with 12,050 acres in 1917. Based on an average of 245 bushels to the acre, the 1918 sowing will yield 4,456,060 bushels, or 8,407 carloads, carrying 530 bushels to the car. Movement of this crop will begin about March 25 and continue during April and May and probably until June 15. The largest movement will take place from April 15 to May 20.

HOW TO ADJUST PLOWS

Depth of furrow is regulated by raising or lowering the clevis. Where wide and frequent variation in soil conditions prevail it may also be regulated slightly by the gauge wheel. This method should not be used, however, where the soil conditions are uniform, except in very stony soil, as it increases the draft of the plow. In any case, there should not be an excessive bearing pressure on the gauge wheel, its function being to prevent plowing at a greater than the desired depth when passing from a firm and hard soil to one of friable nature.

Width of furrow is regulated by shifting the hitch on the clevis to or from land according to whether a greater or less width of furrow slice is desired. In using more than two horses this also may be regulated to some extent by the gauge wheel, which may be adjusted to lead the wheel to or from land.

To Make United States Food Leaflets Available to Employees

To meet the demands of business organizations which have asked to be allowed to purchase sets of the 20 official United States food leaflets for redistribution to all their employees, the United States Department of Agriculture and the Food Administration have determined upon a sales plan with Alexander H. Kerr, special assistant, United States Department of Agriculture, in charge for both departments. The new plan will in no way interrupt the extensive free distribution of single leaflets to individuals, but is devised to enable employers interested in welfare work to make intensive distribution which will help their employees to purchase family food supplies more effectively and maintain the health and efficiency of workers, children, and other members of their households.

These four-page leaflets, constituting an admirable war-time cookbook, furnish practical directions and many simple recipes for using corn meal, hominy, oatmeal, potatoes, and rice as wheat substitutes, and milk, fish, dried peas, and beans as meat substitutes. They also supply the latest suggestions for saving sugar, use of vegetables in the diet, and economizing in fuel.

IMPORTANCE OF WEED CONTROL.

Numerous cost-account records collected by the Office of Farm Management, United States Department of Agriculture, show that on the average diversified American farm the cost of tillage operations comprises from 30 to 40 per cent of the total cost of farm operations. Probably half the total amount of cultivation required is necessary only for controlling weeds, and in many instances practically all intertillage could be eliminated without affecting crop yields if by other means weeds were prevented from growing.

If the beginner has had experience in poultry keeping, it will be all right to purchase eggs and start with setting them. Otherwise he should begin with the fowls and thus gain some knowledge of caring for poultry before attempting to raise chickens.

WOMEN ON THE FARM

An Address by Clarence Ousley, Assistant Secretary of Agriculture

It is no mere gallantry of sex, but an acknowledgment of fact, to say that in this war emergency, as in all the crises of our history and of the race, there is nothing finer in spirit or effect than the service which the women of the United States are rendering. In her very nature woman is an instrument of sacrifice. By circumstance and habit, and perhaps also by nature, she is accustomed to self-effacement. As a rule, her chief thought is the thing to be accomplished; her least thought is her own welfare. The greatest factor of success in war is sacrifice—not the sacrifice of burnt offering, but the sacrifice of comfort, of well-being, and, if need be, of self.

Woman's Part Not Spectacular.

Hence it is that woman entered the war already trained in the psychology of war as it governs or influences personal conduct. It is not her privilege to engage in the adventures of war, to perform the thrilling feats on land and sea and in the air which make war appeal to the mind of the animal man as a great emprise, and which in some degree compensate him for his sufferings and sacrifices. There is a vast difference between serving even in the trenches and serving behind the lines, between fighting man to man and fighting disease in the hospitals or hunger in the kitchens, and the difference to the manly man or the courageous woman lies, not as the cowardly and the low-minded imagine, in favor of the sheltered service, but in favor of the battling service, where force matches force and mind clashes with mind, and the grim business takes on the nature of rivalry if not of sport. I can imagine every brave woman in the United States in these times wishing she were a man, and I can excuse the wish because every hour I am wishing that I were younger. Yet I know there is service for the elders and for the physically less fit, and that it is unmanly to repine.

A Vital Service for the Republic.

So I bring you the assurance that your service is none the less vital, and that you are doing a part which, if not the greater part, is assuredly not the lesser part of this big task we have undertaken to save our Republic, to save freedom in the world, and even to save the German race from the utter bestiality to which it is committed by its barbaric rulers.

I am asked to say something about what women may do in producing food to sustain our people, our armies, and the armies and peoples of those who are fighting with us. This is the big job back of the lines. We have now 2,000,000 men under arms; millions more are engaged, directly or indirectly, in work related to war, and while the farm has lost only a small percentage of its man power in the draft, it has lost a considerable share of its labor by the demands of industries and by the lure of cities, and yet it is called upon to increase its harvests, and the harvest must be increased or there will be privation here and may be hunger over there, where hunger spells ruin to civilization.

The Need on the Farms.

To come directly to the point, to state the case bluntly without further analysis, there is need for the mobilization of additional labor to supply the farmers with their needs for the particular days or weeks of seasonal strain in cultivation and harvest. Responding to the Nation's appeals, the farmers last year increased their plantings beyond those of any preceding year, and this year are further increasing their plantings. They are planting more than they will perhaps be able to cultivate without increments of labor now and then, and certainly more than they will be able to harvest without increments when the fields are ready for the harvest. Reports come to the Department of Agriculture that in many regions the farmers are working until black dark; they are foregoing their Saturday half holiday; and their families are making the most of every hour of daylight. What additional help can be provided in these circumstances? Let us understand that additional help must be provided, for we can not afford to default in food production.

In the first place, there are many able-bodied men in the towns and cities doing utterly useless things for their own comfort or the comfort of other people who are financially able to employ their services. There are thousands of men checking hats, brushing clothes, carrying hand baggage, running pleasure automobiles, sprinkling lawns, and announcing visitors who represent a sinful waste of energy in a time when every ounce of energy is needed. It is against the fashion in England, France, and Italy to employ useless servants. Women set the fashion. The example of social leaders, with the indorsement of organized women, would speedily put an end to in-

(*Continued on page 8.*)

PEANUT FLOUR IS VALUABLE AS SUBSTITUTE FOR WHEAT

Peanut flour, obtained either directly from roasted or raw peanuts or from peanut oil cake, is expected to be available in increasing quantities this year, says a recent publication of the United States Department of Agriculture.

This product, says the Department, is especially well adapted to serve as a part substitute for wheat flour in making bread, biscuits, cakes, gems, griddle cakes, and waffles, and in this regard the peanut may be said to have a direct bearing on the war problem of saving wheat.

The following recipe, tested by the Office of Home Economics of the Department, is designed for three loaves of peanut bread:

2¼ quarts sifted flour.
¾ pound roasted and hulled peanuts.
2 cakes compressed yeast, or
1 cake dry yeast, or
2 cups liquid yeast.
3 tablespoons sugar.
1½ tablespoons salt.
3¼ cups lukewarm liquid (water, milk, or equal parts of water and milk).

Break peanuts into small pieces and mix thoroughly with the flour that has been weighed out. When liquid yeast is used its volume must be included in the total liquid required. Measure out liquid yeast, dissolve sugar and salt in the rest of the liquid and add to yeast, and set aside for an hour in a warm place. Or, if compressed yeast is used, soften the cake in a little lukewarm liquid and add to the remainder of the liquid in which the sugar and salt are dissolved, and set aside for an hour in a warm place. At the end of the hour add this ferment to the measured flour in the mixing bowl and mix thoroughly. Knead about 15 minutes, until smooth and elastic. Cover the bowl and let rise 1¾ hours—usually it has trebled its bulk in this time. If desired, knead down and let rise a second time until very light. Then knead lightly, mold, place in a greased pan, cover, and let rise until two or three times the original bulk. Bake 50 to 60 minutes in a moderately hot oven.

If dry yeast is used, soak one yeast cake in water as usual for 1 hour. Use this in making a sponge with 1½ quarts of sifted flour and the required amount of sugar. In the morning, or when this sponge is light, stir it until smooth, add the salt, and finally the well-blended mixture of three-fourths quart of flour and three-fourths pound of crushed roasted peanut meats. Knead until smooth and elastic, adding flour or water, if required to make a dough of the proper consistency. Cover and allow to rise again until quite light. Divide and mold into loaves, allow to rise until two and a half times the original volume, and bake as directed above.

APRIL LIVE-STOCK MOVEMENT INCREASED OVER LAST YEAR

Final Reports from 57 Markets Announced by Department

Receipts and Shipments Cover Cattle, Hogs, and Sheep—Movement of Horses and Mules at 45 Markets Decreased, Report Shows

Increased receipts and shipments of cattle, hogs, and sheep at 57 markets during April, 1918, compared to April, 1917, are shown by the final stockyards report for April issued May 14 by the Bureau of Markets. Receipts of cattle were 2,015,536; hogs, 3,676,181; and sheep, 1,132,832, the increases being 33, 23.4, and 5 per cent, respectively.

Total shipments, including stockers and feeders from 47 markets for last month were: Cattle, 704,286; hogs, 1,265,215; and sheep, 498,646, the respective increases over April, 1917, being 37.1, 53.4, and 38.4 per cent.

Shipments also show increases for the four month period of this year compared to 1917, the percentages at 48 markets being cattle, 20.8; hogs, 12.9; and sheep, 4.9.

The total receipts of sheep in April, 1918, are increased by the returns from Salt Lake, where receipts jumped 78,126 over April, 1917.

Lecal slaughter figures at 46 markets for April were: Cattle, 1,239,049; hogs, 2,385,855; and sheep, 606,760, an increase of 30.8 and 12.1 per cent for cattle and hogs and a decrease of 16.5 per cent for sheep.

Receipts of horses and mules at 45 markets in April were 40,593 compared to 90,661 in April, 1917. Shipments from the same markets were 47,168 compared to 84,431 in April last year. The figures on horses and mules, however, show only slight decreases for the first four months of 1918.

President Places Farm Implement Industry Under License System

(*Continued from page 1.*)

to issue such orders as are essential effectively to carry out the provisions of this act."

And whereas it is further provided in said act as follows:

"That from time to time, whenever the President shall find it essential to license the importation, manufacture, storage, mining, or distribution of any necessaries, in order to carry into effect any of the purposes of this act, and shall publicly so announce, no person shall, after a date fixed in the announcement, engage in or carry on any such business specified in the announcement of importation, manufacture, storage, mining, or distribution of any necessaries as set forth in such announcement, unless he shall secure and hold a license issued pursuant to this section. The President is authorized to issue such licenses and to prescribe regulations for the issuance of licenses and requirements for systems of accounts and auditing of accounts to be kept by licensees, submission of reports by them, with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the places of business of licensees."

And whereas it is essential, in order to carry into effect the purposes of said act and in order to secure an adequate supply and equitable distribution and to facilitate the movement of certain necessaries hereafter in this proclamation specified, that the license powers conferred upon the President by said act be at this time exercised to the extent hereinafter set forth—

Now, therefore, I, Woodrow Wilson, President of the United States of America, by virtue of the powers conferred on me by said act of Congress, hereby find and determine, and by this proclamation do announce, that it is essential, in order to carry into effect the purposes of said act, to license the importation, manufacture, storage, and distribution of certain necessaries, hereinafter called farm equipment, including attachments and repair parts thereof, required for farm use in the actual production of foods and feeds, as follows: Binders, boilers, brooders, bunchers, carriers, carts, cleaners, covers, crushers, cultivators, diggers, distributors, drills, elevators, evaporators, fencing, forges, forks, fountains, gates, graders, grinders, grindstones, harrows, harvesters, headers, hillers, hitches, hullers, huskers, incubators, jacks, listers, loaders, markers, milkers, mills, mowers, pens, pickers, planters, plows, powers, presses, pullers, pilleys, pulverizers, pumps, racks, rakes, rollers, scales, seeders, separators, shellers, shredders, silos, sleds, slings, sorters, sowers, sprayers, spreaders, stalls, stanchions, tanks, tedders, testers, threshers, towers, tractors, trailers, troughs, trucks, wagons, weeders, weighers, windmills and all other tools, utensils, implements, and machinery required for farm use in the actual production of foods and feeds.

All individuals, partnerships, associations, and corporations engaged in the business of importing, manufacturing, storing, or distributing the said farm equipment (except those specifically exempted by said act of Congress) are hereby required to secure licenses on or before June 20, 1918, which will be issued under such rules and regulations governing the conduct of the business as may be prescribed under said act.

The Secretary of Agriculture shall carry into effect the provisions of said act, and shall supervise and direct the exercise of the powers and authority thereby given to the President, as far as the same apply to the said farm equipment, and to any and all practices, procedure, and regulations applicable thereto, authorized or required under the provisions of said act, and in this behalf he shall do and perform such acts and things as may be authorized or required of him from time to time by direction of the President and under such rules and regulations as may be prescribed by the President from time to time. All departments and agencies of the Government are hereby directed to cooperate with the Secretary of Agriculture in the performance of the duties hereinbefore set forth.

Applications for licenses must be made to the law department, license division, United States Food Administration, Washington, D. C., upon forms prepared for that purpose.

Any individual, partnership, association, or corporation, other than as hereinbefore excepted, who shall engage in or carry on the business of importing, manufacturing, storing, or distributing such farm equipment after the date aforesaid, without first securing such license, will be liable to the penalty prescribed by said act of Congress.

In testimony whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done in the District of Columbia this 14th day of May, in the year of our Lerd one thousand nine hundred and eighteen, and of the independence of the United States of America the one hundred and forty second.

[SEAL.] WOODROW WILSON.

By the President:

ROBERT LANSING,
Secretary of State.

Regulations Governing Licensees in Farm-implement Trade

Following are the general regulations governing licensees engaged in the business of importing, manufacturing, storing, or distributing farm equipment:

REGULATION 1. The term "farm equipment," wherever mentioned in these regulations, shall be deemed to mean certain necessaries, including attachments and repair parts thereof, required for farm use in the actual production of foods and feeds, as follows: Binders, boilers, brooders, bunchers, carriers, carts, cleaners, covers, crushers, cultivators, diggers, distributors, drills, elevators, evaporators, fencing, forges, forks, fountains, gates, graders, grinders,

(*Continued on page 5.*)

Help Produce Food, Mr. Town Man— Get Blisters and a Clear Conscience

Speaking of food—how much of what you eat do you help to produce by your own work? Farms need labor. The difficulty is not an insufficiency of actual man power. There are plenty of men to supply the farms with help. But that man power is applied to other things, and the farms will not be adequately supplied with help unless men turn temporarily from their present business or employment and work on farms in their county during the rush periods of cultivation and harvest.

If we were not at war *you* might feel free to disregard this as your personal duty. But we *are* at war; this is a war need, and you are not free to disregard it.

It is the duty of every strong man of farm experience or of farm aptitude, who is not now engaged in work of war value, and not engaged in work to which his personal attention is constantly indispensable, to go to farms in the agricultural territory adjacent to his town when farm labor needs are urgent, and help produce the food crops which are essential to war winning.

You eat every day. Some man's hard work produced that food. Our soldiers in France must eat and somebody's hard work must produce that food. If you are so situated that you *can* help produce this food it is your war duty to do so.

Get in touch with the county agent of the United States Department of Agriculture and the State Agricultural College or write the State Agricultural College if you can not get in personal touch with near-by farmers who need help. Lay off your present job or get away from your present business for a few days or a few weeks as you are needed. You'll lose money and weight. You'll gain blisters, sore muscles, and a clear conscience.

President Places Farm-Implement Industry Under License System

(*Continued from page 4.*)

grindstones, harrows, harvesters, headers, hillers, hitches, hullers, huskers, incubators, jacks, listers, loaders, markers, milkers, mills, mowers, pens, pickers, planters, plows, powers, presses, pullers, pulleys, pulverizers, pumps, racks, rakes, rollers, scales, seeders, separators, shellers, shredders, silos, sleds, slings, sorters, sowers, sprayers, spreaders, stalls, stanchions, tanks, tedders, testers, threshers, towers, tractors, trailers, troughs, trucks, wagons, weeders, weighers, windmills, and all other tools, utensils, implements, and machinery required for farm use in the actual production of foods and feeds.

Reg. 2. Licenses required, pursuant to the proclamation of the President of May 14, 1918, to engage in or carry on any business of importation, manufacture, storage, or distribution of any farm equipment, shall be prepared by the law department, license division, United States Food Administration, shall have the signature of the Secretary of Agriculture affixed, and shall not be transferable.

Reg. 3. Each licensee shall give to any representative designated for the purpose by the Secretary of Agriculture, whenever the said representative shall so require, any information concerning the business of the licensee. Such information shall be in writing or otherwise, and with or without oath or affirmation, as the said representative may require. Written reports, when requested by said representative, shall be made on blanks furnished by the Department of Agriculture, giving complete information regarding or affecting transactions in any farm equipment, which is imported, manufactured, packed, purchased, contracted for, received, sold, stored, shipped, or otherwise handled, distributed, or dealt with, by the licensee, or which is on hand, in the possession, or under the control, of the licensee, and any other information concerning the business of the licensee that such representative may require from time to time.

Reg. 4. Each licensee shall, during ordinary business hours, permit any representative of the Secretary of Agriculture, designated by him for the purpose, to enter the place of business of such licensee and inspect any and all property stored or held in possession or under the control of the licensee and all records of the licensee. All necessary facilities for such inspection shall be extended to the said representative by the licensee and his agents and servants. Said representative shall be the President's duly authorized agent for the purposes of this regulation.

Reg. 5. Each licensee shall keep such records of his business as shall make practicable the verification of all information given by him under these regulations.

Reg. 6. No agent or employee of the United States shall, without the consent of the licensee concerned, divulge or make known in any manner, while he is such agent or employee or thereafter, except to such other agents or employees of the United States as may be required to have such knowledge in the regular course of their official duties, or except in so far as he may be directed by the Secretary of Agriculture or by a court of competent jurisdiction, any facts or information regarding the business of any licensee which may come to the knowledge of such agent or employee through any examination or inspection of the business or accounts of the licensee or through any information by the licensee pursuant to these regulations.

Reg. 7. A licensee shall not import, manufacture, store, distribute, sell, or otherwise handle any farm equipment on any unjust, exorbitant, unreasonable, or discriminatory and unfair commission, profit, or storage charge.

Reg. 8. A licensee shall not resell any farm equipment within the same trade without reasonable justification. Any such resale without reasonable justification, especially if tending to result in a higher market price to the retailer or consumer, will be deemed to be a wasteful practice.

Reg. 9. A licensee shall not buy, contract for, sell, store, or otherwise handle or deal in any farm equipment for the purpose of unreasonably increasing the price or restricting the supply of any such commodity, or of monopolizing, or attempting to monopolize, either locally or generally, any such commodity.

Reg. 10. A licensee shall not knowingly commit waste or willfully permit preventable deterioration in connection with the production, importation, manufacture, storage, distribution, or sale of any farm equipment.

Reg. 11. Each licensee shall report in writing to the Secretary of Agriculture, within ten days thereafter, any change of address, or any change in the management, control, ownership, or character of the business of the licensee.

Reg. 12. A licensee shall not, without the express sanction of the Secretary of Agriculture, sell any farm equipment to any person engaged in the business of selling or utilizing such commodity or any derivative therefrom, if the licensee has knowledge that such person, after this regulation has become effective, has violated the provisions of the aforesaid act of Congress approved August 10, 1917, by making an unjust or unreasonable rate or charge in selling or otherwise handling or dealing in such commodity or by holding, contracting for, or arranging for a quantity thereof in excess of the reasonable requirements of his business for use or sale by him for a reasonable time.

Reg. 13. A licensee shall not make any misleading representation which tends to enhance the price of any farm equipment. The issuing or making public of market quotations, or any statement to any person regarding the price at which any farm equipment is being sold, which quotations or statement can not be verified either from the

records of such licensee or from the records of other licensees, shall be considered as making such a misleading representation.

REG. 14. The words used in these regulations shall be construed to import the singular or plural, as the case demands. The word "person," wherever used in these regulations, shall include individuals, partnerships, associations, and corporations.

REG. 15. The general rules and regulations as to food commodities, effective November 1, 1917, as amended, under the food-control act, shall not apply to farm equipment.

In accordance with my proclamation of May 14, 1918, and pursuant to the authority conferred on me by the act of Congress approved August 10, 1917, entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," the foregoing regulations are hereby prescribed and promulgated to govern persons licensed to engage in and carry on any business of importation, manufacture, storage, or distribution of farm equipment.

Done in the District of Columbia this 14th day of May, 1918.

WOODROW WILSON,
President.

No Sugar Needed for Peanut Candies—Try Some Next Time

Peanut candies are always popular. Such sweets can be made at home without sugar, the Office of Home Economics of the United States Department of Agriculture has found. The following recipes have been supplied by that office:

Peanut Brittle

1 cup white corn sirup.	1 teaspoon vanilla.
1 tablespoon vinegar.	1 cup freshly roasted peanuts, halved.
¼ teaspoon salt.	

Cook the corn sirup, vinegar, and salt in a saucepan until a little dropped in cold water forms a soft ball. Put the peanuts and this sirup into an iron skillet and stir until the sirup becomes a golden brown. Remove from the fire and stir in vanilla. Have ready a shallow buttered pan, pour candy in and spread out in a thin sheet. Allow to cool, then remove from pan and crack into pieces.

Peanut-Pop Corn Balls.

2 quarts freshly popped corn.	1 cup corn sirup.
2 cups freshly roasted peanuts.	1 tablespoon vinegar.
	½ teaspoon salt.
	1 teaspoon vanilla.

Boil the sirup, vinegar, and salt until the sirup hardens when dropped in cold water. Add vanilla. Pour, while hot, over the popcorn and peanuts, and mix well. When cool enough to handle, grease the hands and form into balls.

URGE NEGROES TO WORK SIX DAYS A WEEK TO GROW FOOD

Colored Farm Agents Start Campaign to Abolish Saturday Holiday

Posters, Registration Cards, and Service Badges Used in South in Effort to Set Aside Old Customs—Department Cooperates

The negro farm-demonstration agents of Alabama, at a recent meeting at Tuskegee Institute, started a campaign that they hope will put an end to the old custom in the South, especially among farmers, of observing Saturday, or part of it, as a holiday. They formed an organization, known as the "United States Saturday Service League," and in cooperation with the United States Department of Agriculture are urging farmers and farm laborers throughout the South to work six days in every week to meet the war need for food and feedstuffs.

In furthering the movement the league is issuing posters, registration cards, and service badges. Upon becoming a member a farmer or farm worker is registered and receives a service badge inscribed with the letters "U. S. S. S. L." All members who work at least six Saturdays are given another badge with a silver field and gold letters. At the end of the crop year, November 30, all members who have worked 21 Saturdays will receive a badge with a gold field and silver letters.

It will be no easy task to change the practice of Saturday holidays, the demonstration agents say, but to allow it to exist when hundreds of thousands of the best laborers are leaving the farms is "nothing less than criminal." The demonstrators appeal for the cooperation of farmers, landlords, and merchants, in addition to the farm workers.

One of the posters issued by the league says:

Sunday: Rest and keep it holy.
Monday: Work!
Tuesday: Work!
Wednesday: Work!
Thursday: Work!
Friday: Work!
Saturday: Work!

FIFTY-ONE SPECIALISTS AID IN DEPARTMENT'S POULTRY CAMPAIGN

Fifty-one experienced poultrymen are employed as emergency workers to aid the Animal Husbandry Division of the Department of Agriculture in the stimulation of poultry and egg production. Most of these men have had 10 years' experience or more in the industry. Seventeen have been in poultry work for 20 to 29 years, and four have been in the industry 30 years or more.

Included in the workers are a poultryman of international reputation, a vice president of the American Poultry Association, several editors of poultry publications, and a number of well-known judges of poultry. All have had practical experience in handling and breeding fowls, and more than a few are experienced breeders of exhibition standard-bred poultry.

In cooperation with the State agricultural colleges of 33 States, these men are urging everyone who is in a position to do so to keep poultry and to handle it in such a way as to obtain maximum results.

LOOK OUT FOR FIRES IN HAY STACKS—SEE THAT HAY IS PROPERLY CURED

A well-filled mow or a big stack of hay, symbol ordinarily of happy prosperity, may contain within it the lurking spirit of a fire that will sweep a farmstead.

Many destructive blazes, points out a Department of Agriculture bulletin on fire prevention, have been caused by a spontaneous ignition of hay, especially clover and alfalfa. The first cutting of the latter seems to be most dangerous. If hay of this kind has rain or dew on it or if the stacks are not cured thoroughly, the moisture will cause fermentation which may produce sufficient heat to start a fire. The combustion, however, can not continue long without oxygen and may cease without coming to the surface. Its presence can be detected by a peculiar sooty odor or by smoke irritating to the eyes. It may take place from a few days to several weeks after the hay is put up.

The proper maintenance of farm machines not only saves money but avoids danger to those who operate them. Keeping the harness and vehicles in repair may prevent a dangerous runaway.

PUT A SEAT ON YOUR HARROW

It is a waste of energy to plod along behind a harrow in the soft ground. It is hard work, and requires a sturdy constitution. A much better way is to provide a seat on the harrow and ride. In recent years riding attachments, similar to the ones commonly used on disk harrows, have been employed on spike-tooth and spring-tooth harrows. They add little to the draft and make available for this sort of work labor which otherwise could not be used.

LIMIT USE OF OIL AND COAL PRODUCTS IN HIGHWAY WORK

Applications for Such Material Must Have Approval of Federal Departments

Plan Designed to Prevent Further Deterioration of Roads and at Same Time Satisfy Fuel and Oil Requirements for War Purposes

Petroleum, asphalt, or tar products wanted for the construction, maintenance, or reconstruction of roads will be delivered only after approval of the application by a committee representing the United States Fuel Administration and the Office of Public Roads of the United States Department of Agriculture. This announcement was made today by officials of the two Federal agencies.

State Departments Approve First.

State highway departments, to which notices of the restrictions have been sent, are required to pass upon all applications for highway work in their territories involving the use of these materials. Applications are then to be sent to L. W. Page, Director of the Office of Public Roads, Washington, D. C. Mr. Page is chairman of the committee which will consider the necessity of the material being supplied and will make recommendations to the oil division of the Fuel Administration, which will issue permits in accordance with the recommendation when the material is available.

Upwards of a billion dollars is the valuation placed by officials of the Office of Public Roads upon bituminous macadam roads in this country requiring for their maintenance asphalt, road binders, road oils, tar binders, or dressings. The plan to issue permits is designed to prevent further deterioration of these roads, and at the same time endeavor to satisfy fully the fuel oil requirements of the Army and Navy, the essential war industries, and the allies.

Preference Given to Maintenance.

The United States is now being drawn upon to a constantly increasing extent for petroleum products, especially fuel oil, according to officials in the Oil Division of the Fuel Administration. The supply of bituminous products is so limited that it is requested that all new road construction involving these materials be deferred this year, except in cases where such work is necessary toward the winning of the war. Preference will be given to materials wanted for maintenance and repair work.

Forms on which all applications for petroleum, asphalt, or tar products for highway work must be made have been supplied to the State highway departments and additional copies may be obtained from the Office of Public Roads. These forms require detailed information as to the length, location, general uses, and military necessity of highways to be built, maintained, or repaired.

NEW LAWS BY STATES HELP WORKING OF FEDERAL ROAD ACT

Every State in the Union to-day is in a position to cooperate with the Federal Government in the building of highways under the Federal aid road act of 1916, says a recent publication of the United States Department of Agriculture. Unquestionably, it is added, the spring of 1918 will see Federal aid projects ready for construction in every State.

Results of far-reaching importance and of even greater potential value than the appropriation of Federal funds have already been accomplished by the Federal act, says the publication. Among the impressive results is the establishment outright of State highway departments in Delaware, South Carolina, Texas, Indiana, and Nevada and the strengthening of other State highway departments so as to remove all question as to the 16 States which were not qualified to obtain Federal cooperation at the time of the passage of the Federal act.

State Highway Legislation.

In the past winter, it is stated, more constructive State highway legislation has been placed upon statute books than has ever been enacted in any similar period since the American Republic was founded. The conditions laid down by the Federal act as necessary to participate in its benefits operated powerfully to bring about the establishment and strengthening of State highway departments, the placing of a vast amount of road construction under skilled supervision, the systematizing and correlation of road work so as to provide the improvements most needed to meet traffic requirements, the creation of large funds for construction and maintenance, and the establishment in many States of definite provisions insuring maintenance of highways from the date of their completion.

The working season of 1917 marked the opening of the actual construction work under the terms of the post-road provision of the Federal act, as necessary legislative and administrative work made it impracticable to get construction projects under way earlier. On January 31, 1918, the Secretary of Agriculture had approved 253 individual projects, aggregating 2,849.48 miles and calling for an expenditure from Federal funds of $7,324,721.72, and from State and local funds of $9,917,143.70, making a total of $17,241,865.42. These projects represented applications from 44 States. Every type of construction recognized by highway engineering as practicable is represented in the projects already approved.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 18, 1918:

Circular 113, Office of the Secretary, Use Soy-Bean Flour to Save Wheat, Meat, and Fat.

Farmers' Bulletin 923, Fumigation of Citrus Trees.

Farmers' Bulletin 949, Dehorning and Castrating Cattle.

Farmers' Bulletin 954, The Disinfection of Stables.

Farmers' Bulletin 966, A Simple Hog-Breeding Crate.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

DEMANDS FOR PEANUTS GROWING.

Because the demand for peanuts for all purposes is increasing very rapidly, specialists of the United States Department of Agriculture believe that the future of the peanut industry is very bright. The demand for peanut oil especially is growing, owing to the shortage of fats and the decrease in cotton production as a result of the spread of the boll weevil.

Probably the greatest opportunity for increasing the acreage for peanuts is for stock-feeding purposes, says a recent publication on the subject. Nearly every farm in the peanut-growing section could grow to advantage an acre or several acres, depending on the size of the farm, for feeding to hogs.

Peanut production has increased from about 3,500,000 bushels in 1899 to over 40,000,000 in 1916, and at the same time the price per bushel has increased.

HOW WEEDS REDUCE CROP YIELD

Considering the principal crops in the United States, it is estimated that weeds reduce the yield of corn by 10 per cent; tame hay, 3 to 16 per cent; potatoes, 6 to 10 per cent; spring grain, 12 to 15 per cent; winter grain, 5 to 9 per cent; tobacco, fruit, and truck crops, 0 to 5 per cent; pasture, 5 to 50 per cent.

WOMEN ON THE FARM

(*Continued from page 3.*)

dulgences which to the right-minded and the patriotic must soon appear as vulgar and wicked.

Men Doing Women's Work.

In the next place, there are thousands of men in the towns and cities doing things that women can do as well. There are men cooks, men waiters, men clerks, men bookkeepers, whose places might well be filled by women. This is a situation not so easily affected by a decree of fashion, and yet it is none the less subject to an irrestible influence which women can instantly exercise. The man does not live who can resist the scorn of his fellow men; much less can he resist the scorn of womankind. It has come to pass already that the coward who tries to evade military duty without a good reason finds no favor among his women friends. It would be quite becoming if the women of the land in a discriminating and just way would visit their unspoken, but none the less sufficient, condemnation upon the man who is not in the true sense doing a man's job.

With the relief of man power by the suspension of useless service and by the substitution of women in tasks which woman can readily perform, there will remain more to be done upon the farm, and there is opportunity from time to time for women to work on the land. It would be extremely unfortunate, I think, if we should get the notion or herald the idea that we have come to such a pass in the United States that we must drive our women to the farms. As God made woman a little finer in spirit than man, so he made her a little frailer in body. She can endure more suffering, perhaps, but, as a rule, she lacks the physical strength and endurance for the hard labor from sun up to sun down that constitutes the day's work on the farm.

Men First for Heavy Work.

I will despise American manhood if the great body of our men permit our women to be drafted for these hard tasks of agriculture until we have sent every able-bodied creature in breeches to the trenches or driven him to the fields; but women are to be encouraged, so far as their physical condition will permit or the circumstances surrounding them will advise, to engage in the lighter tasks of the farm, particularly in dairy work, in vegetable cultivation, and in fruit harvesting. Well-planned undertakings to this end should be stimulated, provided only that we do not fall into hysterics about it, that we do not undertake the impossible, that we do not create the impression of exhaustion of man power, and, most important of all, that we do not encourage physical slackers to keep the shady and sheltered places while our women take the sun and the rain.

However, let me remind you that there is a considerable army of women already in the field of agriculture. The Department of Agriculture, in cooperation with the land-grant colleges in all the States, maintains a service of home demonstration in domestic science and arts in 1,675 out of 2,957 counties in the United States. This service is conducted by 1,150 trained women who are in the homes of the farmers, teaching them better ways of living, showing them new methods of conservation, and making the farm home a point of as much concern in the interest of health and comfort as the farm establishment from the standpoint of profit.

What the Home Workers Did.

These leaders last year taught 1,900,000 women and girls to can and dry vegetables and fruits. The girls under instruction canned over 14,000,000 containers and the women more than 35,000,000 containers. At the minimum wholesale price of these products their value aggregated more than $7,000,000, and the recorded activities represent only a part of what was accomplished under the leadership of these women employed by the Department of Agriculture and the land-grant colleges last year in the production and conservation of fruits and vegetables. There are in the pantries of the United States to-day more of such products than there ever were before, and every container represents an equal amount of commercial pack released for transportation across the sea. This service is in its infancy, so to speak. Within another four or five years I do not doubt that it will be extended to every agricultural county in the United States, and to many of the cities. Its accomplishments will be multiplied many fold if the women of the land through group action and local organization would accept and put into practice the teachings of these leaders.

It is hard for many people to understand that a national accomplishment is the sum of individual accomplishments, that the aggregate of the millions of bushels or pounds of increased production or of decreased consumption is composed of the few bushels or few pounds produced or conserved by the individual. Too many people are trying to serve the country by doing something spectacular, especially by coming to Washington or by going to Europe. The service that we most need now is the service of individual performance in our own homes, in our own business, and in our own neighborhoods.

The Woman Army in Farm Homes.

But there is another vastly greater army of women already on the land, and they are doing a man's share of agricultural production and conservation. I speak of the six or seven millions of farmers' wives. Most of our publicists and leaders have forgotten them. Most of them are in the kitchen before daylight and long after dark; they cook and sew, and generally they wash, often even for the hired men; they cultivate the gardens, they care for the poultry, they make the butter, and often they work in the fields. I have seen them hoeing in the hot sun while their babies lay in the shade of near-by trees. They are truly and to the limit of their strength and their marvelous patience the helpmeets of their husbands. They are the world's strictest economists, and its most heavily-laden burden bearers, for while they take on the burdens of vocation they do not lay down the burdens of sex; they bear children and they grow old prematurely.

I can imagine no finer thing for a city woman to do in this war emergency than to go to the farm for the harvest or for some other period of labor strain to help her country sister bear these burdens of kitchen and farm. Any good woman would keep house for a sick friend; the nurses in France are scrubbing floors in hospitals. It seems to me that some of the splendid zeal of our American city women to render war service might find satisfaction in the farm homes.

Women can Solve Problem.

I do not undertake to prescribe any precise method of organization or mobilization, or to set any limit upon the activities of women in the field of agriculture. I have tried merely to tell you something of the problems as I see them. I have full faith that when the women of America address themselves seriously and sympathetically to this problem, as they have addressed themselves to other problems within the sphere of their particular responsibility, or within the range of their particular fitness, they will work out methods far more efficient than the mind of mere man can conceive.

It will be a blessed thing if out of this trial and the occupational and economic readjustments to which we must resort we can establish a new relation or revive an old relation between the town woman and the country woman; if we can make farm home life more comfortable; if we can make city home life more wholesome; if we can get into the country something more of the city's spirit of aspiration, and if we can get into the city something more of the country's spirit of humility; if we can take to the country the order and the progress of the city; and if we can take to the city the freshness and the fragrance of the country. I venture the suggestion that such an undertaking of blessing and beauty will yield a richer accomplishment under the acknowledged instinct of woman than under the boasted philosophy of man.

The extra labor required to keep weeds under control is probably the greatest economic loss whch they cause.

MANY WAYS TO USE HONEY AS SUBSTITUTE FOR SUGAR

Cakes Made of Bee Product Will Keep Much Longer

Not Necessary to Boil Honey Before Using—Studies by Food Specialists Develop New Methods of Preparation—Popular Ways to Serve

Various ways in which the housewife can use honey to advantage are suggested in a new publication of the United States Department of Agriculture—Farmers' Bulletin 653, "Honey and Its Uses In the Home." In this country honey has hitherto not been in as common use as in Europe, especially in cookery. It is, however, a comparatively simple matter to substitute it in many recipes for common sugar or for molasses, and when this is done the resulting flavor is often both novel and agreeable.

One of the great advantages in the use of honey is that cakes made with it will keep much longer than those made with sugar. A honey cake made with butter, for instance, will keep its quality until the butter grows rancid, and one made without butter will keep fresh for months. For this reason honey is especially useful in recipes that call for no butter. Icing made with honey has the same advantage, and some icing made in the experimental laboratory of the Department of Agriculture was found at the end of 10 months to be as soft and in as good condition as when it was first made.

Not Necessary to Boil Honey.

The experiments conducted by the department indicate that many of the instructions in the old cookbooks for the preparation of honey are unnecessarily elaborate. For example, it used to be thought that honey had to be brought to the boiling point and then skimmed and cooled. Since honey is extremely likely to boil over, this process requires great care. Experiments showed, however, that it appears to be quite unnecessary, and it is probable that the notion arose at a time when ordinary commercial honey contained more impurities than at present. Similarly, the older recipes say that the dough should be kept at least one day before the soda is added. No evidence to support this theory was found by the investigators. On the other hand, however, they did discover that dough containing honey can be more easily kneaded if allowed to stand for several days. Again, the use of "potash" is recommended in most of the recipes in foreign cookbooks as a means of raising the dough. The properties of potash are quite similar to ordinary baking soda, and there seems no reason why the latter should not do just as well. Baking soda is a common kitchen commodity in America, and potassium bicarbonate—the potash of the cookery book—is almost unknown for household purposes. As a matter of fact, a little experience will enable any competent cook to substitute honey successfully for sugar in bread, cake, preserved fruits, sauces, and candies. It is safe to estimate that a cupful of honey will sweeten a dish about as much as a cupful of sugar, but since honey contains water in addition, there is less need for milk or other liquids. For practical purposes it is accurate enough to consider that for each cupful of honey a quarter of a cupful is added to the recipe. If these facts are kept in mind special honey recipes are unnecessary.

Marketed in Two Forms.

Honey is marketed in two forms, known respectively as comb honey and extracted honey, the former being used much like jam or marmalade and the latter either in that way or for cooking. In the past there has been some prejudice against extracted honey—or honey removed from the comb—because it was believed that this was frequently adulterated. However prevalent this practice may have been in the past recent legislation and the efforts of honey producers hemselves have made it dangerous and unprofitable. There is now, it is believed, little adulterated extracted honey on the market. Comb honey is practically certain to be the pure product of the hive, because it can only be adulterated by processes which cost more than they save. When sold at retail there is now comparatively little difference in the cost of comb and extracted honey, but the latter can be purchased at wholesale very much cheaper. The reason for this is that the producer of comb honey makes a product which is practically ready to be delivered to the consumer. Moreover, it costs the bee keeper less to produce extracted honey, while the wholesaler who purchases extracted honey has several processes to go through with before he can sell it at retail. If the housewife is willing to do these herself, she can effect a considerable saving.

Many Popular Ways to Serve It.

The simplest and, perhaps, most popular way of using honey is to serve it like jam or sirup with bread, pancakes, etc. When used in this way an ounce of honey may be regarded as the equivalent of an ounce of jam. When intended for sirup it is sometimes diluted with hot water, not only to make it less sweet but also easier to pour. The housewife will also find some form of tart fruit served with honey, cottage cheese, and bread and butter an attractive combina-

(*Continued on page 10.*)

WIN WITH POTATOES.

The enemy is out-eating us in potatoes—out-potatoing us. Here are the figures—per capita weekly consumption:

United States	2.3 quarts.
Austria-Hungary	8 quarts.
Germany	16 quarts.

We can beat them at their own food—which really isn't theirs; it's a native American crop. We must eat more potatoes, says the Department of Agriculture, and that right soon, or much of our record crop of last year will be wasted. Potatoes are plentiful and getting cheaper. Eat them instead of bread. Fight the enemy with potatoes.

Responsibility of Towns and Cities in Supplying Farm Labor

Prosperity of the villages, towns, and cities in the agricultural regions is measured largely by the production of the surrounding farms.

If there are poor crops, the farmers have little money to spend for clothing, furniture, and other necessities. When the crops are good, money flows into the community and both farmer and business man alike are benefited.

More directly at this time people of our towns and cities are interested in a larger food production, so that there may be a big surplus to feed the Army, Navy, and the allies.

Business men should aid farmers in obtaining sufficient labor to plant and harvest the crops. Farmers should be urged to go ahead with their farm work and assured of sufficient labor to handle the products.

SIMPLE EQUIPMENT IS INSURANCE AGAINST THRESHING-MACHINE FIRES

Owners of threshing outfits are urged by the United States Department of Agriculture to install simple equipment as insurance against grain and smut dust explosions and fires which cause enormous losses to grain and machinery during the thrashing season, particularly in the Pacific Northwest. Fine dust which accumulates when the machine is operating has been found to be very explosive and will readily ignite. It has been

established that many, if not most of these explosions have been caused by the ignition of the dust by static electricity generated by the moving parts of the grain separator. The engineers of the department have developed an efficient method of grounding the machines to remove the electricity, consisting of wires connecting the metallic parts with the ground. An automatic fire extinguisher also has been developed and has proved very effective in reducing fire losses. A suction fan placed near the cylinder has been found to be successful not only in reducing the amount of dust in suspension in the machine, thereby removing part of the danger of explosion, but is an important factor in cleaning the grain and increasing its market value. Complete instructions for equipping a machine to prevent losses due to dust explosion and fire can be obtained by writing to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

MANY WAYS TO USE HONEY AS SUBSTITUTE FOR SUGAR

(*Continued from page 9.*)

tion and an economical substitute for the much-prized and very expensive Bar-le-Duc currants which are themselves often cooked in honey and served with cream cheese and crackers. The following are typical of an almost endless number of honey recipes:

Honey and Nut Bran Muffins.

½ cup honey.
1 cup flour.
From ¼ to ½ teaspoon soda.
¼ teaspoon salt.
2 cups bran.
1 tablespoon melted butter.
1½ cups milk.
¾ cup finely chopped English walnuts.

Sift together the flour, soda, and salt, and mix them with the bran. Add the other ingredients and bake for 25 or 30 minutes in a hot oven in gem tins. This will make about 20 muffins.

Butter Honey Cake.

1½ cups honey.
½ cup butter.
3 egg yolks.
5 cups flour.
2 teaspoons ground cinnamon.
½ teaspoon salt.
1½ teaspoons soda.
2 tablespoons orange-flower water (water may be substituted).
Whites 3 eggs.

Rub together the honey and butter; add the unbeaten yolks and beat thoroughly. Add the flour sifted with the cinnamon and the salt; and the soda dissolved in the orange-flower water. Beat the mixture thoroughly and add the well-beaten whites of the eggs. Bake in shallow tins and cover with frosting:

Nut Honey Cake.

2 cups brown sugar.
2 cups honey.
6 egg yolks.
3 cups flour.
Speck of salt.
1½ teaspoons soda.
3 teaspoons ground cinnamon.
½ teaspoon ground cloves.
½ teaspoon ground nutmeg.
½ teaspoon allspice.
1 cup chopped raisins.
½ ounce citron cut in small pieces.
½ ounce candied orange-peel cut in small pieces.
½ pound almonds coarsely chopped.
Whites of 3 eggs.

Mix the sugar, honey, and the yolks of the eggs, and beat thoroughly. Sift together the flour, salt, spices, and soda. Combine all ingredients but the whites of the eggs. Beat the whites of the eggs till they are stiff and add them last. Pour the dough to the depth of about half an inch into well-buttered tins, and bake in a slow oven for one-half hour.

Hard Honey Cake.

¾ cup honey.
½ cup sugar.
2½ cups flour.
1 egg.
¼ teaspoon ginger.
1 teaspoon cinnamon.
½ teaspoon ground cardamon seed.
½ teaspoon cloves.
Speck white pepper.
Speck salt.
½ teaspoon soda.
1 tablespoon water.
2 ounces blanched almonds cut into small pieces or chopped.

Sift together the flour and spices, dissolve the soda in the water, beat the egg, and combine all the ingredients. Beat or knead the mixture thoroughly. Cook a small sample. If it does not rise sufficiently, add a little more soda and honey; if it fails, add a little more flour. Roll out the dough to the thickness of about three-fourths of an inch and bake in a hot oven. When the cake is done glaze it with a thick sirup of sugar and water and allow it to dry in a slow oven or in some other warm place. While it is still warm, cut it into long strips, or it may be left in one large cake, to be cut into thin slices when served. This cake will become very hard on cooling and will not be soft enough to eat for several weeks, but will keep in good condition for an indefinite length of time.

Honey Charlotte Russe.

1 quart cream.
6 lady fingers.
½ cup delicately flavored honey.

Chill the honey by placing the dish containing it in a pan of ice water. Whip the cream and add it to the honey, mixing the two well. Line a dish with lady fingers and fill it with the honey and cream. Serve very cold.

Currants.

Bar-le-Duc currants, an article of commerce often made with honey, sell for a a relatively high price, in part no doubt because of the large amount of labor involved in preparing them. The seeds are removed from the currants by a method which mutilates the fruit very slightly; the fruit is then preserved in honey or sugar sirup.—Those who wish to take the time to preserve currants in this way will find that a convenient way to remove the seeds is to cut a small slit in the side of each currant and remove the seeds by means of a needle. After this is done, weigh the currants and take an equal weight of honey. Bring the honey to the boiling point, add the currants, and allow them to cook at the boiling point for two or three minutes, or until the skins are tender, being careful not to let the mixture boil violently, because this is likely to destroy the shape of the fruit. If the currants are so juicy as to liquefy the honey too much, they may be removed and the sirup reduced to the desired consistency, after which the currants may be replaced.

It is possible, of course, to preserve currants in honey according to the same recipe without the removal of the seeds, but the preserve thus obtained is not nearly so delicate as when the seeds are removed.

Home Gardener Can Grow His Own Flower Seeds, Specialists Say

The home gardener who grows his own flower seeds is likely to take more pride in them than the gardener who buys his seeds. Furthermore, according to specialists of the United States Department of Agriculture, if he uses the needed amount of care he can be certain that his flowers will turn out to be what he expected.

The gardener who grows his own seeds is advised to watch the seed pods or heads after the flower has dropped and if they ripen unevenly to pick the ripe ones before the seeds shatter. The seed pods should be placed on paper in a dry, airy place. But if the seeds ripen evenly, the gardener should cut the seed stalks, lay them on paper in a dry place, and when they are thoroughly dry rub out the seeds and store them in a ventilated metal container.

Flowers are either annuals, which grow from seed and produce seed the same year, or biennials, which live two years and produce seed during the second year, or perennials, which live more than two years but which seldom produce seed before the second year, but continue to produce seed annually thereafter.

IMPORTATIONS OF NURSERY STOCK SMALLEST IN NUMBER OF YEARS

Of the importations of nursery stock inspected at points of entry in this country the Federal Horticultural Board passed 39,358 shipments during the year ending June 30, 1917. This is the smallest number that has been received for a number of years. During 1916 over 64,000 importations were received, and over 57,000 were received in each of the two previous years.

The total importations of nursery stock for the last four years is interesting in view of the war conditions affecting the principal exporting countries, namely, France, Holland, and Belgium. The importations of

Eat potatoes, every bite,

Help the Soldiers with their fight.

1913–14 were not influenced by the war, as these importations were completed before the war began. The war had no effect upon importations during the next two years, and, in fact, there was an increase during the second year of the war, 1915–16. A marked decrease is shown, however, in the last year, 1916–17.

Thirty foreign countries, including practically all which have hitherto maintained any considerable commercial trade in nursery stock in the United States, have provided for inspection and certification of nursery stock in conformity with the regulations prescribed by the plant quarantine act. Any country may obtain the privilege of commercial exportation to the United States by providing an inspection service.

SUGAR-BEET AREA COULD BE EXPANDED IN NINETEEN STATES

A recent publication of the United States Department of Agriculture, telling of the shortage in the world's supply of sugar and the necessity for its increase, says that in each of the 19 States now producing sugar beets there are areas capable of producing sugar beets, but not now under cultivation for this purpose. These areas in part are undeveloped.

The present sugar-beet acreage, as far as the availability of the land is concerned, may be expanded either by injecting sugar-beet culture into the present farming operations or by development of new areas. A number of beet-sugar mills operated to one-half their capacity or less, and few operated at full capacity during the past season because of a lack of an adequate supply of beets. It is held that in the vicinity of these mills there should be an expansion of the sugar-beet acreage sufficient to provide a normal run for each mill.

Hitherto untilled areas may be utilized, the publication says, by bringing in new land through drainage, through the extension or development of irrigation systems, or through the cultivation of lands now in a raw state. In the past year large areas of Indian lands not formerly cultivated have been leased and prepared for sugar-beet culture. Plans are under way still further to increase the sugar-beet acreage by the utilization of other Indian lands in Wyoming, Idaho, and Montana, and by the drainage of large areas in southern California.

To control or eradicate a weed it is first necessary to determine the kind, the character, and habits of growth and reproduction, and sufficient about its life history to fix the time when it is most susceptible to treatment.

TO EXTEND DISEASE CONTROL IN COTTON, TRUCK, AND FORAGE

More States to Have Cooperation of Department of Agriculture

Work Planned Includes Demonstrations in Control of Cotton Wilt, Anthracnose and Root-Knot, Potato and Sweet-Potato Diseases, and Other Plant Maladies

The United States Department of Agriculture is planning to extend into additional States its work to control the diseases of cotton, truck, and forage crops. This will be done as soon as workers can be obtained and arrangements completed. The work will be in cooperation with the State extension forces.

The work thus far planned comprises demonstrations of the control of cotton wilt by the use of wilt-resistant varieties; cotton anthracnose by seed selection, seed treatment and rotation of crops; root-knot of cotton, truck, and forage crops by rotation with resistant or nonsusceptible crops; potato diseases, to include control of late blight by spraying, production of disease-free seed potatoes, and a seed potato survey; sweet potato diseases by seed selection and disinfection, sanitation of hot beds, and rotation of crops; asparagus rust by the use of rust-resistant strains; bean anthracnose, bacterial blight, and mosaic by the use of disease-free and disease-resistant seed; Septoria leaf-spot of tomatoes by spraying, and Fusarium wilt of tomatoes through resistant varieties.

General work, including control of onion smut and neck-rot, cabbage yellows and club-root, cucumber angular leaf-spot by seed treatment and crop rotation, watermelon end-rot and anthracnose, and greenhouse seed-bed troubles by sanitation and soil sterilization, is also in progress or projected.

State extension pathologists, with the cooperation of the State extension divisions, already have been placed in specific States to have direct control of the extension work on cotton, truck crop, and forage crop diseases are:

W. L. Doran, Amherst, Mass.; L. M. Massey, New Brunswick, N. J.; G. B. Ramsey, Orono, Me.; A. L. Wilson, Logan, Utah; R. A. Jehle, West Raleigh, N. C.; J. A. McClintock, Athens, Ga.; M. R. Ensign, Fayetteville, Ark.; S. P. Doolittle, Madison, Wis.; S. L. Dodd, jr., Morgantown, W. Va.; D. C. Neal, Baton Rouge, La.; C. S. Ridgway, College Park, Md.

LIVE-STOCK RECEIPTS IN APRIL.

Receipts of cattle and hogs at 44 cities in April showed increases over the receipts in April a year ago, according to the stock yards report just issued by the Bureau of Markets, United States Department of Agriculture. Figures for April, 1918, from the 44 cities, which include all large yards, were: Cattle, 1,901,582; hogs, 3,527,536; and sheep, 974,829. Figures for April, 1917, at the same cities were: Cattle, 1,431,942; hogs, 2,866,563; and sheep, 1,027,784.

HOW TO INCREASE AMERICA'S SUPPLY OF CANE AND BEET SUGAR

A recent publication of the United States Department of Agriculture gives the following recommendations for the maintenance and extension of the domestic cane-sugar supply:

Extend the cane-growing areas; use better cultural methods; adopt a crop-rotation system; improve cane varieties; control diseases and insects; utilize more by-products; feed tops and leaves to live stock; substitute cane sirup for sugar; improve the grade of sirup; produce raw sugar to conserve the refined sugar.

To maintain and increase the domestic beet-sugar output the following recommendations are given:

Improve cultural methods; practice proper methods of crop rotation and cultivation; feed by-products to live stock; work for maximum mill runs; cultivate new areas; drain wet areas and cultivate them; develop new irrigation systems and extend the old ones; induce more farmers to grow beets; harvest the beets more carefully; develop labor-saving machinery; produce an adequate supply of high-grade sugar-beet seed; and develop better strains of sugar beets.

PEANUT BUTTER EASY TO MAKE.

Peanut butter, which has become very popular for use in soups, gravies, in connection with macaroni, and for sandwiches, can be made at home by grinding roasted peanuts through a food chopper several times, using the nut knife. Add salt to taste. This makes a paste which may be thinned with a little cream or milk if desired. The method has been tested by the

Office of Home Economics of the United States Department of Agriculture.

Another sandwich filling may be made by the following recipe:

1 cup milk or water.	1 tablespoon butter or other fat.
1 tablespoon flour.	¼ cup vinegar.
½ tablespoon water.	Red pepper.
1 egg.	2 cups roasted peanuts ground fine.
1 teaspoon salt.	
1 tablespoon sugar.	

Heat the milk and while it is heating mix the flour with the water and add eggs, salt, and sugar. To this mixture add the heated milk. Cook five minutes, stirring constantly. Then add butter, vinegar, and ground peanuts.

Ninety-two Cents an Hour Made By Factory Workers in Gardens

One large manufacturing concern in Ohio provided gardens for its employees in 1917, and required them to keep an accurate record of the time spent working the gardens and the value of the crop grown.

At the end of the season the results showed that the gardeners had received 92 cents an hour for their spare time spent in the gardens.

Another large manufacturing concern in Illinois plowed up a prize 40-acre alfalfa field and divided it into garden plats for the use of its employees. The results obtained from this garden plat far exceeded the expectations of both the company and its employees.

Manufacturers all over the country are providing gardens for their employees this year, according to reports to the United States Department of Agriculture.

HOME GROW YOUR PROTEIN FEEDS—SOLVE PROBLEM OF HIGH PRICES

Clovers, alfalfa, soy beans, cowpeas, and vetches can be profitably produced on every live-stock farm in the country, and it is of great importance that an adequate supply be grown this year to furnish feed for live stock. These leguminous crops are comparatively rich in protein. The recent prices of feeds which are rich in protein have been so high as to prey vitally on the net profits which otherwise would have accrued to the producers of live stock.

Varieties of seed of the crops mentioned have been acclimated and rendered practical for production in nearly every section. The man who is unable to raise clovers, vetch, or alfalfa on his farm can resort to soy beans and cowpeas. The latter crops can be grown for either concentrates or roughage use, and as such enable the stockman to prepare a well-balanced ration of home-grown feeds which contain a sufficient supply of protein. They enable him to reduce his feeding cost very materially and do away to a large extent with high-priced cottonseed, linseed, and peanut meals, which range in protein content from 36 to 50 per cent and cost at the present time from $60 to $85 a ton.

The crop of soy beans and cowpeas can be utilized in a number of ways. They can be used for grazing or soiling purposes, be converted into hay or silage, or harvested and threshed and used for feeding or seeding purposes. Every farm equipped with a gasoline engine and a small power grinding mill can readily convert any surplus cowpeas or soy beans into meal. It is essential that these grains be ground in combination with corn, usually one part of beans or peas to three or four parts of corn. When ground alone the excessive oil in the leguminous grains will cause the mill to gum up.

Solve the problem of high-priced feeds by growing crops rich in protein on your own farm.

CIVIL SERVICE EXAMINATIONS.

The Civil Service Commission announces the following examinations for positions in the United States Department of Agriculture:

Assistant editor (male), Division of Manuscripts, June 18, 1918. Salary, $1,800 to $2,750 per year.

Assistant in charge of demonstrations, boys' and girls' extension work, (male); salary ranges from $2,200 to $3,500 per year. Field agent and demonstrator, boys' and girls' club work (male and female); salary, $1,500 to $2,200 per year. Vacancies exist in two or more of each position in the States Relations Service, for duty at Washington, D. C. Date of examination, June 18, 1918.

Assistant in marketing investigations (male), Bureau of Markets. Several vacancies exist at a salary ranging from $1,800 to $3,000 per year. Examination June 25, 1918.

Biochemist (male and female), Bureau of Chemistry, for duty at Washington, D. C., or elsewhere; salary, $1,800 to $3,000 per year. Examination June 25, 1918.

Investigator in marketing live stock and meats (male), Bureau of Markets; salary, $2,400 to $3,000 per year. Examination June 18, 1918.

Specialist in cotton testing (male), salary, $2,400 to $3,000 per year; also assistant in cotton testing (male), salary, $1,500 to $2,400 per year; Office of Markets and Rural Organization. Examination June 19, 1918.

Applicants for above examinations should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Wood technologist (male), Forest Service, at a salary of from $1,800 to $3,000 per year. Several vacancies at Madison, Wis., or elsewhere, will be filled from the examination, which will be held on June 25, 1918. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Flies that Come in the Spring Are New Ones—Swat 'em Early

The house flies that you see in early spring are not the flies of the preceding autumn. They are the offspring, not the survivors of those that sought a warm refuge in the fall. The flies that appear in the spring quickly become reproductive and by early summer the baby fly of a few weeks past will have become a patriarch with millions of great-great-grandchildren. Therefore, swat early.

These facts are presented by a United States Department of Agriculture scientist. His findings, based on long experiments, support the popular belief that a "swat" in the spring saves a lot of them later on. A fly thoroughly swatted when he is young and comparatively innocent not only will be unable to carry disease but will not have very many children.

The investigator found that in the latitude of Washington, D. C., the house fly may overwinter by continued breeding in warm places where food and receptacles for its eggs are available, and in the early stages of fly life in or under large manure heaps. No evidence whatever was found to show that house flies can persist as adults from November to April, either outdoors or in protected or heated buildings. Temperatures of 12° to 15° F. are quickly fatal, and there is every reason to believe that any temperature below freezing will kill if continued long enough.

WOOL CONSUMPTION IN APRIL.

Consumption of wool by manufacturers in April was slightly less than in March but more than in either January or February, according to the monthly wool consumption report just issued by the Bureau of Markets. April consumption was 70,700,000 pounds, grease equivalent, compared to 71,900,000 used in March, 63,700,000 in February, and 65,100,000 in January.

Stocks of wool consumed in April by classes, in pounds, were: Grease wool, 42,715,619; scoured, 12,163,198; and pulled, 2,772,431. Consumption by States for all classes of wool, in pounds, was: Massachusetts, 24,631,670; Rhode Island, 7,221,200; Pennsylvania, 6,400,612; New Jersey, 6,073,903; New York, 5,032,971; New Hampshire, 1,909,238; Connecticut, 1,895,644; Ohio, 1,333,323; Maine, 910,272; and all other States, 2,242,415.

Out of 585 schedules sent out 508 manufacturers reported wool consumed in April, 63 no wool used, 9 returned schedules stating that their raw material consisted of tops, yarns, and waste, while 5 failed to reply. The 5 manufacturers who did not return schedules have a capacity of 25 sets of woolen cards and 5 worsted combs.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. V JUNE 5, 1918 No. 44

CAN "MATCH THE PRESIDENT" IN RAISING FLOCK OF SHEEP

Large Lawns, Public Parks, and Golf Courses Might be Utilized

But Department of Agriculture Points Out Number of Factors to Be Considered in Starting Such an Enterprise

When a flock of sheep appeared not long ago on the greensward of the White House grounds, a desire to "match the President" in helping to increase the country's mutton and wool supply was manifested by many persons whose responsibility covered big lawns, golf courses, and city parks. Some of them began to ask questions of the Department of Agriculture.

In the opinion of officials of that department, which is charged with the stimulation of the sheep industry, many public parks, golf courses, and private lawns in the country may be so situated that they can profitably be made to serve as grazing grounds for sheep. It is believed that their use for grazing sheep would have not only a sentimental value but a practical one. But owners and persons charged with the care of such property are advised to investigate the matter thoroughly before they embark in the enterprise of raising sheep. Sheep raising involves much more than placing the animals in good pasture, the specialists explain. It has its technical side, and at present, when every pound of wool and every pound of meat is needed, it is felt that experience bought at the price of either wool or meat would be too costly. The Animal Husbandry Division of the department will answer requests for information from persons who desire to raise sheep, and has a number of publications on the subject available for free distribution.

Sheep now cost approximately three times as much as in normal times. Good commercial sheep at present sell for from $16 to $20 a head.

Favored Prey for Dogs.

In any sheep enterprise provision must be made for the guarding or fencing in of the flock, for not only are the animals prone to stray from home pastures, but they are favored prey for dogs, which annually inflict great losses on the industry. Winter care must be provided for, and feed and sheltered quarters must be available in cold weather. Persons who desire to raise sheep are advised to enter the industry with a view of staying for several years at least. The gross annual returns from the ewes of breeding age may be expected to range from $8 to $15 a head, depending upon the percentage of lambs raised, the weight of the fleece, and the value of these products. The fleece from one sheep averages 5 to 8 pounds and is now selling for from 50 to 65 cents a pound. The ewes with good management will each raise a lamb. The lambs at 5 months will weigh approximately 60 pounds and will be worth 15 cents a pound and over. The useful life of a sheep is about six years.

Used in Public Parks.

Flocks of sheep have been maintained in public parks in New York and Boston, and a flock once was grazed on the grounds around the Washington Monument in the capital. The use of sheep in lawns and parks has been extensive in England. The labor-saving value of sheep is important, for they are neat and effective grass cutters.

Sometimes, too, they eat shrubbery and flowers, but this danger can be met by a watchful shepherd or other safeguards.

When any new weed appears it should be called immediately to the attention of some one who can identify it.

GOOD LABOR FOR THE FARM

To secure maximum production from our farms it is necessary to have a large supply of efficient labor. Farmers demand men who have had farm experience and who know how to do farm work.

Farmers do not want men who are now loafing in the cities and are unfit for work. They are not willing to turn over valuable horses and machinery to be overworked and injured by careless, worthless fellows who seek the farm more as a place to get good meals and a bed than to render service.

Agencies attempting to supply farm labor must carefully select the help and send only those familiar with farm work and who are interested and worth while.

SUGAR-BEET GROWERS URGED TO INCREASE YIELDS THIS YEAR

Good Care of Crop During Growing Season Essential

Labor Conditions More Favorable This Year, and Introduction of New Machinery Will Do Much to Relieve the Situation

Growers of sugar beets are urged by the United States Department of Agriculture to give special care to their beets during the growing season, in order that the yields may be increased, and in this way add to the Nation's supply of sugar. There is every indication that a normal crop has been planted this year in nearly all sugar-beet States. In the past the average yield of beets per acre in the United States has been approximately 10 tons, yet yields of 15 to 20 tons are not uncommon. If the 800,000 acres of beets which were planted last year all had been carried to maturity and an increase of but 1 ton per acre had been produced by more careful methods, we would have had 800,000 tons of beets in excess of the normal crop, which would have added 100,000 tons to our supply of sugar.

Factors Favoring High Yields.

As soon as the beets have from four to six leaves they should be blocked and thinned, so that the plants stand singly at intervals of 8 to 12 inches in a row, the rows being 20 inches apart. Careless blocking and thinning is responsible in part for low yields. This is readily preventable. Likewise, careless cultivation reduces the number of plants and thereby cuts down the tonnage. This is also preventable. When the beets are harvested there is frequently unnecessary loss due to the breaking of the roots when the beets are lifted, and by improper topping. If the beets are not delivered immediately after they are removed from the ground, further loss can be prevented by covering them to prevent drying. If the weather is cold, they should be suffi-

(*Continued on page 4.*)

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Mobilizing Harvest Labor.

Steps for the systematic mobilization of farm labor in Kansas were taken at a meeting held in Kansas City May 14. This is a first of a series of meetings which are to be arranged by the Department of Agriculture in a number of cities to unite the efforts of all agencies working to secure labor to help farmers in harvesting their crops. At the Kansas City meeting a committee was appointed to direct the work of the various agencies in the State and to see that registrations are held in the cities, where city employees who will do farm work during their vacations can register. It is estimated that 80,000 helpers will be necessary to harvest the crops in Kansas this year, and the commercial organizations in Kansas City have undertaken to supply 10,000 of this number.

Protecting Fighters from Bad Meat.

Sixty-seven inspectors of the Bureau of Animal Industry are now with the Army inspecting the meat and meat products supplied for the soldiers and 30 others are similarly engaged with the Navy. Operations are under Federal supervision from the time the live animals are driven into the slaughtering houses until the finished product is delivered in good condition to the mess cooks.

Demonstrations on Preserving Eggs.

To teach city people how to preserve eggs with water glass, extension workers of the poultry division are holding demonstrations in large department stores in a number of cities. Demonstrations have been held in Washington, Chicago, and New Orleans, and the plan is to extend the work to other large cities. Similar demonstrations have been held in rural schools and at meetings attended by farmers.

Pig Club Membership Increases.

One hundred thousand boys and girls are now members of pig clubs. This is more than twice the number enrolled last year, when 45,000 members produced approximately 10,000,000 pounds of dressed pork. These boys and girls are raising pigs under the supervision of local pig-club leaders who are cooperating with the State colleges and the United States Department of Agriculture.

Breaks Record for Hauling Eggs.

The first commercial truck load of eggs from Vineland and Millville, N. J., into New York City—about 140 miles—arrived recently with not one egg broken. Delivery from the shipper to the wholesaler was made in 15 hours, which is faster time than that made by express shipments and establishes a record for motor haul of eggs, according to the Bureau of Markets of the United States Department of Agriculture, which arranged for the demonstration. The 5-ton truck carried 150 crates of eggs, weighing nearly 4 tons, the rest of the load being made up of crated glass. It left Vineland at about 11 a. m. and arrived in the wholesale district of New York City at 2 o'clock the next morning.

Cities Being Asked to Supply Farm Help.

To interest commercial organizations in cities in the problem of supplying farmers in surrounding communities with sufficient help to harvest their crops, the Department of Agriculture, in cooperation with the Department of Labor, has placed trained men in numerous States to call meetings of business men and present the situation to them. Ten men are at work in Illinois, three in Indiana, three in Kansas, two in Virginia, and two in Vermont, and additional appointments are to be made soon. These men will tell the city organizations that, although farmers have planted larger acreages than during the normal year, they will need additional assistance in connection with the harvest, and that each local community should strive to solve its own labor problems. Factories and business houses are being asked to release at least a part of their employees, if necessary, for a few days in order that the farmers may have enough help to save their crops.

Driving Cattle Tick from South Carolina.

The entire State of South Carolina will be freed December 1 from quarantine against the cattle fever-tick, it is believed by officials of the tick-eradication division of the Bureau of Animal Industry. Tick-eradication work is progressing favorably throughout all the other Southern States. The number of dipping vats available on May 1 numbered 22,879.

Uncle Sam's Army of Extension Workers.

An army of 5,651 extension workers is aiding in the Department of Agriculture's food production and conservation campaign. This is an increase of 3,405 over the number doing similar work on July 1 of last year. Of this total 3,049 are in county-agent work, serving 2,450 counties; 1,690 are in home-demonstration work, serving in 1,675 counties; and 912 are in boys' and girls' club work. In the 15 Southern States 2,624 workers are busy carrying out the plans of the food campaign, and in the 33 Northern and Western States 3,027 are employed. On July 1 of last year 1,640 were employed in the Southern States, and 606 in the Northern and Western States. In the Southern States there are 130 negro county agents and 160 negro home-demonstration agents.

The Department's Experimental Kitchen.

An experimental kitchen where substitutes for wheat are being tested has recently been established and equipped by the Office of Home Economics. In this kitchen some of the good old recipes which were in use 50 and 75 years ago, when corn, buckwheat, rye and barley were in more common use, are being revised and standardized, and new recipes in which wheat substitutes play an important part are tested and standardized. A group of women—laboratory specialists and housekeepers with special training—work side by side in the new kitchen. Before a recipe is made public it must not only pass the test of the laboratory specialists but must also meet the test of actual experience in the hands of a housekeeper who studies it for its practical value in the average-kitchen.

Weather Forecasts for Aerial Mail.

Special daily forecasts of weather conditions between New York and Washington are being furnished to the Post Office Department by the Weather Bureau for use in connection with the airplane-mail service between these points. The forecasts are

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POTATOES KEEP YOU FIT

Eat potatoes and be ready for anything. They are cheap—so save your pocketbook. They give you fuel—to do a hard day's work. They give you salts—to keep your body in order.

Plenty of potatoes and hard work make for the best of health.

Write the United States Department of Agriculture for new potato recipes.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing and Preparation the Next Few Weeks

NORTH AND WEST

The Office of Extension Work, North and West, United States Department of Agriculture, calls attention to the following matters which are engaging the attention of farmers and county demonstration agents in many parts of the Northern and Western States during the present month.

The farmer this year who wants to do most for his country and for himself may well observe the following general directions:

1. Continue to follow all the usual good farm practices. Good farming in peace times is good farming in war times.

2. Put the emphasis at this time on the growing of bread grains and other products that may be exported.

3. Every family should grow as much of its own living as it is possible to do, especially grow vegetables and consume them in abundance, and preserve the surplus for winter by canning, drying, and storing. Feed the scraps to pigs or poultry.

The Great Corn Crop.

The great corn crop which the American farmer properly expects to harvest next fall will not be as great as it should be unless there is systematic cultivation work during the present month. The corn crop is largely made in June. The early destruction of weeds and the proper loosening of the top soil at the right time serve to give the corn crop such a start that it can, if necessary, endure a good deal of neglect and drought later in the season, whereas if it is neglected early in the season no amount of work later in the year will enable it to recover the early losses.

The Home Garden.

Everybody is growing a garden this season. The main thing now is to see that nothing in it goes to waste. Vegetables should be conserved in abundance when in season. They save more concentrated foods that can be shipped abroad. All the surplus should be canned and otherwise preserved for use this winter. Modern methods in home canning work make it easy to put up sweet corn, peas, string beans, tomatoes, and such crops in every farm home for winter use. The children can do the canning. Anyone not familiar with easy methods of canning

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MARKETING

The following from the Bureau of Markets may be of interest to producers of certain food products in the near future.

An Inventory of Seed on July 1, 1918.

The seed-reporting service of the bureau will conduct a comprehensive survey of the seed supplies of the country on July 1, 1918, to ascertain, among other things, the carry-over of seed from the spring planting season and the outlook for vegetable seed production this year. This is expected to be of value in connection with future seed surveys and in the work of the department in locating and supplying information about seed for the next planting season.

Increased Use of Inspection Service.

An increasing use of the food products inspection service at large market centers is being made by shippers of fruits and vegetables, and many certificates showing condition of car-lot shipments as they arrive on the market are issued each day. This service is free to shippers, and the certificates issued by the inspectors are used by shippers and dealers in settlement of any claims arising over the car-lot shipments covered by them. Applications for inspection of any given carload can be made to the local agent of the Bureau of Markets at large terminals, or direct to Washington, and should give complete details of the car, including billing and dates of shipment and probable arrival. The certificates issued by the inspectors include not only the condition of the car on arrival but explanations of any damage found through transportation, insects, or disease. In the case of shipments badly affected by insects or plant diseases shippers are at once notified in order that future shipments of produce from that section may be safeguarded.

Possibilities of Shipping by Motor Truck.

Investigations of the use of motor trucks in hauling farm produce to market are being carried out and in some cases actual shipments of farm products are being supervised.

A motor truck route from Vineland, N. J., to New York City, has been established, over which trucks travel regularly picking up eggs from producers and delivering them direct to wholesale dealers in New York City. The first load went through without a single egg being broken and made better time than express shipments.

IN THE SOUTH

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

Thorough Cultivation.

June is always the busy month on the southern farm. Every advantage must be taken to utilize men and teams this year on account of shortage of labor and the urgent need of making every acre produce to the limit. The sort of cultivation given during this month will largely determine the yield of all crops, especially the corn crop. Cultivation should be continued as late as possible to obtain maximum yields and also to conserve moisture, so frequently lacking just at the most critical period of the growth of the corn. Where the land was preperly prepared before planting, if the cultivation is not neglected the splendid rains of recent weeks should go a long way in insuring a good crop. Do not let weeds grow nor crust form in any corn field during June. Of course, every corn field will be planted to either cowpeas or velvet beans at the last cultivation, where it has not been done before.

Harvesting and Threshing.

The small grains must be harvested this month—the prospects for an unusual crop on the acreage planted has not been so good for years. The utmost care should be exercised to prevent losses in any way. Harvesting machinery should be kept in the best of order. Great care should be taken to shock or stack the grain to prevent weather damage. No effort should be spared to prevent waste at the threshing machine. Avoidable waste at the thresher is poor business at any time; but, under present conditions, it is little less than criminal. The world needs every pound that can be grown, and the farmer who fails in any way to conserve it has failed to do his part in meeting a vital need.

Forage Crop and Silos.

This is the last chance to provide for abundant forage crops. Corn, sorghum, soy beans, or other crops that can be used for silage should be planted and given the best of care. Farmers with sufficient stock to justify it should put up a silo. Those who already have silos, but could utilize more, should not neglect putting up others, for

such farmers already know their value. The silo is the best asset to successful stock raising.

Hay Crops and Pastures.

Every acre of grain lands not utilized for forage crops should be planted to some sort of hay crops. Peas, soy beans, peanuts, can follow the oats or wheat in almost all parts of the South. Cowpeas may be sown broadcast, soy beans and peanuts drilled in rows so that they may be cultivated.

The pastures should not be neglected—briars and weeds can be clipped with mowers, and bushes and shrubs should be cut down or grubbed.

Sweet Potatoes.

Attention should be given to the sweet potato crop this month. In those sections specially adapted to them the crop might be increased with profit. One will be taking no chances on growing a good acreage if storage houses are erected. Instructions for building these houses can be secured from your county agent or by writing to the United States Department of Agriculture.

The Irish potato crop will be ready to harvest in a large part of the South. Every precaution should be taken to conserve this crop for home consumption and for later marketing if there is a surplus.

Seed.

Wherever possible, save seed of all farm crops, at least enough for home use. Good seed is always difficult to secure and is generally expensive. Experience has shown that native-grown seeds, if properly selected and handled, are preferable. War conditions and transportation facilities may make it almost impossible to get what you want next spring.

Boll Weevil, Boll Worm.

The cotton farmer should not forget to be on the lookout for boll weevils, for they will likely appear in sufficient numbers in many localities to do great damage. Don't let the idea that they were killed last winter keep you from protecting your crop.

In those sections where the pink boll worm might appear, county agents and farmers should inform themselves about it sufficiently to know it if it should appear. Many other insect pests, capable of doing great damage, are likely to appear. There are remedies and people whose business it is to tell you how to use them. Get in touch with your State entomologist, through the county agent, and save your crops from these useless losses.

Home Gardens.

In the rush of farm work do not neglect the gardens—the early spring vegetables will soon be gone—follow them with others adapted to the season. Begin now to plan for the fall and winter garden—nothing conduces to health and economy like an abundance of vegetables the year round.

Savings Fruits and Vegetables.

The canning, preserving, and drying season is on—see that the family supply is secured, and, where possible, a surplus should be put up. When the canning or drying is properly done the product will keep any reasonable length of time if stored in a cool, dry place. Write to the Department of Agriculture for a bulletin on canning.

Looking Forward in Farming Operations—North and West

(Continued from page 3.)

vegetables should write to the Department of Agriculture for canning instructions.

The Harvesting Problem.

In the southern portion of this group of States harvesting has already begun. High prices and the need of supplying the country and our European partners in the war with grain make it especially important that grain farmers study the most effective methods of harvesting without waste every acre of grain. Careful harvesting methods for this year will include the raking of grain fields and the careful stacking of the gleanings in order to save all possible grain that may be grown. In connection with this comes the careful shocking and stacking of the grain. Many a farmer has raised a good crop of choice wheat or oats only to have a crop of inferior grain to market because of poor shocking or poor stacking and subsequent loss by protracted rainfall. Everybody needs to be on the lookout this year in order to prevent any of the wastes or losses that usually occur after the grain has actually been grown and harvested. Covered storage is especially important in all humid areas. Threshermen should see that their machines are in order for prompt and clean threshing and that the cleaning up after the threshing is complete.

Conserve the Grass Crop.

There is need of making use of all meadows and pastures to the best possible advantage for the production of a large tonnage of hay during the current season, but without reducing the production of milk and pork from pasturage. In the northern and western portions of the country there are a considerable number of farms where there is a substantial acreage of natural meadow and pasture such as prairie and marsh land, which can be profitably harvested for hay this year. The high prices of the past winter for both hay and straw point to the desirability of filling barns and stacking the surplus beyond the immediate apparent needs as a measure of safety. Transportation problems may be serious again next winter.

Missouri Farmers Organize for War—Secretary Houston Sends Greetings

The effectiveness of county farm bureaus in organized agricultural work toward the winning of the war has been recognized many times by officials of the Department of Agriculture since farmers all over the country began lining up to do their part in the conflict.

One of the recently organized farm bureaus, in Gentry County, Mo., telegraphed to the Secretary of Agriculture, David F. Houston, "its earnest support in your endeavor to increase production and conservation." In reply Secretary Houston sent the following letter:

"I have your telegram of May 11, and am very gratified to learn that a farm bureau has been organized at Albany. Your farm bureau can render material assistance in the efforts of the department and of the State agricultural colleges to stimulate production and to promote conservation, and your offer of cooperation is greatly appreciated."

SUGAR-BEET GROWERS URGED TO INCREASE YIELDS THIS YEAR

(Continued from page 1.)

ciently protected so that the roots will not be frosted.

Use of Labor-Saving Machinery.

Labor is one of the principal factors influencing acreage, as more labor is required in the growing of sugar beets than most other farm crops. From all reports, labor conditions are more favorable for sugar beets than they were a year ago. The Department of Agriculture is endeavoring to meet the labor situation not only by encouraging the shifting of labor to the centers where needed but also by encouraging the development and production of labor-saving machinery.

This year there will be several beet-harvesting machines on the market, some of which have been thoroughly tried out and are capable of doing satisfactory work. These implements, which likely will be in general use in the near future, will do much to relieve the labor situation and thereby lend encouragement to the beet-sugar industry.

The use of chemicals, such as salt, arsenite of soda, nitrate of soda, iron sulphate, copper sulphate, and others, for controlling weeds is not generally advisable.

If you eat potato bread,

Many soldiers will be fed.

Soft-Drink Makers May Save 50,000 Tons of Sugar by Use of Substitutes

Bottlers of soft drinks in the United States may save approximately 50,000 tons of sugar annually by using other sweetening materials, according to investigations by specialists of the Bureau of Chemistry, United States Department of Agriculture. The Bureau of Chemistry is preparing to furnish bottlers with sweetening formulas that will allow the actual sugar content in soft drinks to be cut to 50 per cent or less and at the same time will preserve the customary taste and quality of the beverages. Starch sugar, starch sirup, maltose sirup, and honey are the substitutes used.

The Bureau of Chemistry specialists have cooperated with bottlers in using these to sweeten and give "body" to soft drinks. Their favorable opinions of the results have been sustained by four "tasting juries," made up of representatives of the bottling industry, bureau experts, representatives of flavoring-extract manufacturers, and women and children representing the consuming public.

The sweetening formulas that have been tested in the bureau experiments will be furnished to bottlers and the results of the experiments will be described in detail in bottling trade publications. Restrictions on the use of sugar in soft drinks have been placed by the United States Food Administration, but it is believed that the Bureau of Chemistry experiments will allow the usual amount of these products to be manufactured without marked change in palatability or quality.

What the Department of Agriculture Is Doing

(*Continued from page 2.*)

telephoned each morning as soon as they are made up.

Good Grazing in National Forests.

Except in the Southwest, the greater part of which is suffering from drought, indications point to exceptionally favorable grazing conditions in the National Forests this summer. The outlook, say Forest Service officials, is particularly gratifying in view of the plans made for increased live-stock production on the National Forests to meet war needs. These call for half a million more sheep and nearly a quarter of a million more cattle than last year, when an increase of some 200,000 sheep and 100,000 cattle was made over the preceding year. Increased production, the Forest Service reports, is taking place on a number of the Eastern National Forests as well as on those in the West.

Hurricane Warnings June 1.

Reports of observations from 23 stations in the West Indian and Caribbean Sea region and from 43 vessels plying those waters, for use in connection with warnings of hurricanes developing there, will begin to be received on June 1 by the Weather Bureau. The reports are to continue during the hurricane season, June to November, inclusive.

Seed-Corn Distribution.

Reserve stocks of corn suitable for seed have been placed by the department seed stocks committee in all States north of the Ohio River, where the situation has been considered serious. The seed corn will be sold for cash at cost to farmers needing it, who should get in touch with their county agents or State directors of extension. Fortunately the season has thus far been favorable and the replanting would be less than usual but for the poor quality of much of the seed that has been planted. Final plans for meeting the seed-corn situation were made at a meeting in Chicago in the week of May 13 by State and Federal agricultural officials headed by Dr. R. A. Pearson, Assistant Secretary of Agriculture.

Hunt for War Timber.

The War Department and the Forest Service are aiding the Boy Scouts in efforts to find black walnut timber needed for airplane propellers and gun stocks, following President Wilson's appeal to the Scouts to locate supplies of the "Liberty Tree." Special report forms have been prepared for use of the Scouts, who will submit them for tabulation to the Forest Service, which in turn will report the results to the War Department. The bulk of the standing black walnut is said to be in farmers' woodlots in the Middle West, the Middle Atlantic States, and the southern Appalachians, and it is mainly these sources that the scouts will comb in their search for material.

Permits for Road Oils.

The Office of Public Roads and Rural Engineering is a party to an agreement with the United States Fuel Administration whereby road authorities desiring to construct, maintain, or reconstruct highways requiring coal or oil products in construction, maintenance, or repair must have their applications for these materials approved by their State highway departments and by a committee headed by L. W. Page, Director of the Office of Public Roads. Approved applications are to be transmitted to the Fuel Administration, which will permit delivery of the materials when they are available. Restrictions on the use of these materials have been necessitated by the need of the Army and Navy, essential war industries, and the allies for fuel, oils, and coal.

Meeting of Farm Management Demonstrators.

The States Relations Service, in cooperation with the Office of Farm Management, has arranged for a conference to be held in Chicago the week beginning June 3, at which farm-management demonstrators of the Northern and Western States will discuss demonstration methods. Ways will be considered for conducting demonstrations with regard to a more efficient use of labor, teams, and equipment, and a better organization of the farm to bring about a maximum production of food per workman.

Studies Wheat Source in Australia.

Dr. J. W. T. Duvel, in charge of grain standardization investigations for the Bureau of Markets, is now in Australia investigating the quality and condition of the wheat crop that has been accumulating there since the war began, with a view to its import into the United States for milling.

Road Projects Approved.

In March and April the Secretary, on recommendation of the Office of Public Roads and Rural Engineering, approved 212 State road-building projects involving more than 2,500 miles of highways under the Federal aid road act. The estimated cost of these improvements to the States is about $15,000,000. The Federal aid allowed is more than $5,000,000.

A Monthly Survey of Food Stocks.

An inventory of commercial stocks of grain, flour, meal, and other food products is being taken each month by the Bureau of Markets and the results published in a new monthly publication called "Food Surveys," two numbers of which have already been issued. These monthly surveys began April 1, 1918.

Cold-Storage Space for Butter and Eggs.

In view of the heavy demands for cold-storage space growing out of war shipments, the Bureau of Markets is making surveys of space available for the cold storage of butter and eggs throughout the United States.

Public Roads Magazine Issued.

May saw the birth of a new monthly periodical in the Department of Agriculture, "Public Roads," issued by the Office of Public Roads and Rural Engineering. Its 48 pages, some of them illustrated, contain material intended primarily for State and county highway officials actively engaged

in the construction and maintenance of highways. The principal object of the publication is to act as a medium of exchange of knowledge and experiences between highway departments of the 48 States. The magazine is designed to be a permanent and complete record of activities and construction under the Federal aid road act. Because of the limited allotment for printing expenses the circulation has been restricted to Federal, State, and county officials actively engaged in road work.

To Study Effect of Eclipse.

On June 8, when the moon's shadow will pass diagonally across the United States from Washington to Florida, the Weather Bureau, in connection with its investigations in solar radiation, or amount of heat received from the sun, plans to take advantage of the unusually favorable opportunity to study the effect of an eclipse upon meteorological conditions. Special measurements of the intensity of solar radiation will be made at three stations in Nebraska, Idaho, and Oregon. Efforts will be made to obtain accurate observations of pressure, temperature, wind direction and velocity, and shadow-bands at 49 stations within the belt where the sun will be 90 per cent eclipsed. The data obtained are expected to be of importance in studies of the circulation of the atmosphere.

Fighting Animal Tuberculosis.

In April, 22,492 cattle were tested for tuberculosis in the tuberculosis-eradication work of the Bureau of Animal Industry. This number was 8,494 more than were tested in the preceding month. The tuberculosis control measures are to be applied, in cooperation with State authorities and live-stock owners, along three lines—eradication of tuberculosis from pure-bred herds, eradication from circumscribed areas, and eradication from swine. In the beginning efforts are being concentrated on eradication of the disease from pure-bred herds.

Condition of Truck Crops Reported.

Weekly reports on the condition of truck crops in the Atlantic and Pacific coast States and in Louisiana, Texas, and Alabama come by telegraph from truck-crop specialists to the Bureau of Crop Estimates. Copies of the reports as issued by the bureau may be obtained on application.

The old stubs of cabbage plants should never be left standing in the field. They should be pulled up at harvest time and all that show swellings on their roots should be carefully burned. This precaution will lessen the disease in badly infected fields and will hold it in check in fields where it appears only in spots.

PREVENT EGG LOSSES BY PROPER HANDLING AND SHIPPING

Millions of Eggs Produced in this Country Feed No One

Producers' Part is to Bring Good Eggs to Market—Dealers' Job is to Keep the Eggs Good—Cooperation Necessary

Millions of eggs produced in this country feed no one. The natural question is, Why? And the answer is that they are carelessly handled, poorly packed in improperly constructed cases, badly stored in freight cars, or allowed to become warm on their journey from the hen's nest to the home. Prevent this enormous loss of valuable food, and loss of profits. Take every possible precaution to keep eggs fresh and wholesome, as they are when freshly laid. It is easy to get eggs to market in prime condition, says a recent publication of the United States Department of Agriculture—a circular which tells how.

The proper handling of eggs is not a one-man job, according to the circular. Many people are concerned in it. Their interests are common and mutual understanding and cooperation between them benefits all alike.

The producer's part in the general scheme of good marketing is to bring good eggs to market. To accomplish this he should market his eggs frequently—not let them accumulate.

The dealer's job is to keep the eggs good. His slogan should be "Ship promptly and properly." The sooner an egg is put under refrigeration and started for the market the better its quality when it reaches its final destination and the higher its value.

Precooling Saves Food Material.

A stale egg pleases no one. Heat is the egg's enemy; cold is its friend. Precooling eggs before shipping them, therefore, saves food material. It checks the development of "blood-rings," which occur in fertile eggs subject to incubating temperature (68° F. or higher). It prevents "addled" eggs, the term applied to eggs when the membrane between the yolk and the white breaks allowing the two to become mixed. When the eggs are warm, this delicate membrane becomes soft, in which condition it is more liable to break by jars which are unavoidable in transportation. Chilling makes the eggs stiff and jellylike, and cold eggs ride best. Precooling retards evaporation, the cause of shrunken eggs. Eggs just laid are full, but 65 per cent of their contents is water. As this water evaporates the quality of the eggs is reduced. Warm temperatures aid evaporation. Precooling helps to make a uniform product, and this is a day of standardization. A weak spot in the egg trade is the lack of uniformity or standardization for its product. If each case of eggs received at the market is exactly like the last one, the shipper could establish a reputation for uniformity.

Eggs to be shipped should be well packed in clean, standard egg cases. They should be kept under refrigeration and sent to market in properly iced refrigerator cars, which retain their good quality. Refrigeration during transit maintains quality, weight, fresh appearance, and food value. It retards loss of quality, shrinkage, "blood-rings," and loss of food value.

PROPERLY FROZEN FISH ARE VALUABLE AS FOOD SUPPLY

The business of freezing and storing fish and the commodity itself, when properly handled, received the commendation of the United States Department of Agriculture in a recent publication, Bulletin 635, describing an investigation recently made of the industry.

"Freezing and freezer storage will hold fish for many months in the condition in which they were received," says the bulletin, "but will not repair deterioration due to previous heating or mishandling.

"Properly frozen fish reach the retailer in excellent condition. He should keep them hard frozen until they are sold. The practice of thawing fish by warming or in water greatly lessens their food value and flavor.

"Chemical analyses show no significant changes in fish held 27 months or for a period much longer than would be necessary or profitable in storing fish commercially."

Recent experiments concluded in the department show that fish have a high food value, and deserve an important place in the dietary. These experiments are described in Bulletin 649, Experiments on the Digestibility of Fish.

STAY SLENDER

Body fat is stored-up energy. Keep your energy in circulation—not in storage. Don't be afraid of potatoes. Eat plenty of them. Use up the energy they give you for your war work and stay slender. *Eat well, work hard, be patriotic.*

Write the United States Department of Agriculture for new potato recipes.

Half-and-Half System of Renting Most Successful in This Dairy Region

The so-called half-and-half system is the most common in use and the most satisfactory in renting dairy farms in representative dairy regions near Chicago studied by Farm Management specialists of the United States Department of Agriculture. Generally speaking, under this system the landlord supplies the land, the tenant the labor, and each shares the expenses and income equally. The study was made on 143 farms in Green County, Wis., and Kane County (the Elgin district), Ill., where dairying is a comparatively old, well-developed, and profitable industry. In the report of the study, published as Bulletin 603 of the department, it is brought out that while this system is particularly applicable to the regions studied, it is believed to be suitable in dairy sections generally.

What System Provides.

Under the half-and-half system the landlord furnishes the land, buildings, the greater part of the seed and fertilizer, and half the productive stock, while the tenant furnishes horses, machinery, half of the productive stock, part of the seed, and sometimes part of the fertilizer. All stock is fed usually from the grain and hay owned in common. When a feed of any kind is bought, its cost is shared equally between landlord and tenant. In general, each party pays the taxes on all property owned by him, including the farm road tax, though in many cases in the North Central States all the farm road tax is worked out by the tenant.

Under this system the poultry frequently is owned exclusively, in limited numbers, by the tenant, and he gets the proceeds therefrom, but with this exception each party generally receives half of the proceeds of farm sales of all products of whatever nature.

Less frequently dairy farms are share-rented on the third system, the landlord supplying everything but the man power, which is furnished by the tenant, and getting two-thirds of the sales of all products while the tenant receives one-third. When feed is purchased the tenant pays one-third of the cost.

Length of Lease.

The length of lease in the regions studied ranges from one to five years. In the Wisconsin district 76 per cent of the leases were for one year only, none being for a longer period than three years, while in the Illinois district 63 per cent of the leases were for one year. In the Wisconsin group 35 per cent and in the Illinois group 27 per cent of the leases were verbal. Seventy-five per cent of the farm income on the farms of the Wisconsin group and 85 per cent on those of the Illinois group was from dairy cattle and dairy products. In the Wisconsin group 21.5 per cent of the cows were home-raised heifers that became fresh during the year; 18.9 per cent of the herds were discarded or sold as dairy cows. The farmers prefer to raise their cows instead of buying them, and on over half of the farms studied there were pure-bred Holstein bulls. In the Illinois group 8 per cent of the cows were home-raised heifers with first calves, while 27.6 per cent of the herds were discarded, indicating that this is a dairy-cow purchasing region.

FARM-IMPLEMENT RETAILERS WILL NOT BE LICENSED

Retailers of farm equipment are not required to secure licenses, but they must not profiteer, says a statement issued by the United States Department of Agriculture explaining certain features of President Wilson's recent proclamation establishing a licensing system for the farm-implement trade.

The provisions of the food-control act of August 10, 1917, under which was issued the President's proclamation of May 14, 1918, bringing under license the manufacture, importation, distribution, and storage of tools, implements, machinery, and certain other farm equipment, expressly exempt retailers as such from the licensing requirements and define a retailer as "a person, copartnership, firm, corporation, or association not engaging in the wholesale business whose gross sales do not exceed $100,000 per annum." However, under the provisions of the food-control act, retailers will not be allowed to profiteer; under the regulations issued with the President's proclamation retailers engaging in such practice will not be able to secure a supply of farm equipment.

The regulations provide that a licensee shall not, without the express sanction of the Secretary of Agriculture, sell any farm equipment to any person engaged in the business of selling or utilizing such equipment, if the licensee has knowledge that such person, after the regulations became effective, has violated the provisions of the food-control act by making an unjust or unreasonable rate or charge in selling or otherwise handling or dealing in such equipment or by holding, contracting for, or arranging for a quantity in excess of the reasonable requirements of his business for use or sale by him for a reasonable time.

BEE BUSINESS BOOSTS AS WORKERS AROUSE INTEREST

Indications of Greatly Increased Production Shown in Reports to Department

Factories Making Supplies Ready to Meet Increased Demands—Department Giving Attention to Preventing Spread of Brood Diseases

Production of honey will be greatly increased during 1918 in many localities, according to reports received from extension workers of the United States Department of Agriculture. The increase in Colorado this year will probably be 100 per cent, it is said. In many localities there has been a marked increase in winter protection, and the bees passed the cold season and were ready to begin work of gathering nectar as soon as the weather permitted.

Interest in increasing the production of honey as a war measure is country-wide. The United States Department of Agriculture now has 13 bee-extension workers who are working in 39 States, and the requests from those who wish information and help on beekeeping are coming in faster than the department and its extension workers can take care of them. To meet this demand for information, meetings are being held in various bee-raising districts, particularly in the Southern States, in which bee culture is discussed. The extension workers are giving attention to preventing the spread of brood diseases, especially of American foul brood, brought on in many cases by the failure of beekeepers properly to diagnose the disease.

Demand for Bees Great.

The outlook for 1918 is bright, specialists of the department believe. Factories making beekeepers' supplies have been running overtime during the past winter and are ready to supply all demands that can be made on them, provided the goods can be transported. There has been an enormous increase in the demand for literature on beekeeping, including many calls for Farmers' Bulletins. The demand for bees is so great that it will probably exceed the supply, for in addition to those who wish to embark in beekeeping there is a desire on the part of the beekeepers to enlarge their apiaries and increase their output of honey.

The exports of 1917 honey to Europe, especially to the United Kingdom, exceeded by far those of any previous year. During the winter it was common for more honey to leave for Europe in 10 days than in any year previous to 1914.

New Asparagus, Developed by Department Breeder, Brings Big Premium on Market

There was keen competition among Washington green grocers recently to secure for their customers a new brand of asparagus that came in from South Carolina. The stalks were of great size, tender and crisp, looking like giants alongside the slender "grass" of the common kind from the same producing region. This quality was reflected by the high price paid—more than double the price of other asparagus.

This was the beginning of commercial shipments of a new variety of asparagus developed by J. B. Norton, a plant breeder in the United States Department of Agriculture, after 10 years of painstaking work—introducing, testing, and hybridizing asparagus from all parts of the world. The final outcome will, it is believed, be the replacement of the old varieties of asparagus by this new strain, which is larger, more uniform, more productive, and highly disease-resistant. The new asparagus owes its origin, in fact, to efforts to combat the "rust," a destructive disease that swept over the country a few years ago, leaving the asparagus fields brown and dead, and wiping out the profits of the growers.

A Native of Europe.

The plant doctors pointed out that the asparagus rust came from Europe, and that it was less injurious there. They explained that the asparagus plant itself was a native of Europe, which had been brought to America by the early settlers, leaving this rust disease behind, and that for two or three hundred years the people of the United States had propagated the plant without exposing it to rust infection. The result was that our varieties possessed little or no natural immunity, and when some chance importation from Europe brought the rust parasite over, about 1896, it found a continent full of susceptible asparagus.

The growers tried spraying, with much expense but little success. Other attempts to control it also failed, and it began to look as if we would have to give up asparagus when it was learned that some varieties of European origin were partially resistant.

Asparagus Station Established.

These were planted and the losses from rust fell off. The Massachusetts growers organized an association to secure the cooperation of the Department of Agriculture, and an asparagus station was established at Concord.

The story in detail is a long one, but the result was the solution of the rust problem; and, more than this, the demonstration of a method of securing quality, productiveness, and size never before attained.

The new asparagus is "highly well born." Its parents were selected from many thousands, and were not only of outstanding quality but possessed the power of transmitting their good qualities to their offspring. In asparagus there are male and female plants, the first producing only pollen, the latter seeds when properly pollinated. Of all the thousands of plants grown, one male named Washington has proved superior. He has been mated to many seed plants, but the progeny of two stand out above the others. One, named Martha Washington, is the new kind mentioned. The other, Mary Washington, promises to excel her sister.

The method of pedigree breeding for better asparagus has come to stay, and further improvements will continue in future years when the disease is forgotten.

May Overcome Other Diseases.

The asparagus rust is, in fact, passing away, and the Government plant doctors point to this as one of the most encouraging results of this work, as it indicates the possibility of overcoming other plant diseases through the substitution of resistant for susceptible varieties.

In the beginning of the outbreak asparagus rust was harbored and spread from every susceptible plantation. These centers of infection diminished as the old beds were killed or plowed up and replaced by semi-resistant stock, until wherever the old susceptible kinds are entirely exterminated the disease no longer prevails to any extent. In some sections, however, this replacement is not complete. Old fields abandoned by growers or plants growing wild along the roadside act as centers of infection and spread rust to cultivated fields near by. Elimination of the most susceptible varieties is very important. If this is accomplished, there is reason to hope that the complete substitution of the new varieties for the old will result in partial or entire disappearance of the disease.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 25, 1918:

Hay Making. Farmers' Bulletin 943.

Preparation of Strawberries for Market. Farmers' Bulletin 979.

Pasture Lands on Farms in the United States. Department Bulletin 626.

Marketing Cherries and Berries by Parcel Post. Department Bulletin 688.

Selection, Preparation, and Planting of the Potato Plant. Circular 7, Office of Extension Work North, States Relations ervice.

More Care Needed in Handling Western Cantaloupes. Document 9, Bureau of Markets.

Use Barley—Save Wheat. Secretary's Circular 111.

The House Rat. Yearbook Separate 725.

Butterfat and Income. Yearbook Separate 743.

How the Dairy Cow Brought Prosperity in the Wake of the Boll Weevil. Yearbook Separate 744.

The Peanut—A Great American Food. Yearbook Separate 746.

Cheese Making Brings Prosperity to Farmers of Southern Mountains. Yearbook Separate 737.

Hides and Skins—Production, Foreign Trade, Supply, and Consumption. Yearbook Separate 741.

The Sources of Nitrogenous Fertilizer. Yearbook Separate 729.

Pig Clubs and the Swine Industry. Yearbook Separate 753.

Sugar Supply of the United States. Yearbook Separate 756.

The Design of Public Roads. Yearbook Separate 727.

Phosphate Rock, Our Greatest Fertilizer Asset. Yearbook Separate 730.

Conservation of Fertilizer Materials from Minor Sources. Yearbook Separate 733.

Production of Drug Plant Crops in the United States. Yearbook Separate 734.

Teamwork Between the Farmer and His Agent. Yearbook Separate 736.

Service of Cold Storage in the Conservation of Foodstuffs. Yearbook Separate 745.

Growth of the Beef Cattle Industry in the South. Yearbook Separate 749.

Sheep and Intensive Farming. Yearbook Separate 750.

Wool; Production, Foreign Trade, Supply, and Consumption. Yearbook Separate 751.

Fresh Vegetables. Food Leaflet 16.

Raise Chickens. Library Leaflet 1.

Use More Fish. Food Leaflet 17.

Rice. Food Leaflet 18.

Hominy. Food Leaflet 19.

Wheatless Breads and Cakes. Food Leaflet 20.

Points for Poultry Packers. Chemistry Circular 3.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

A systematic rotation of crops is one of the most feasible and effective means of controlling weeds.

Sheep Raising Steadily Advancing With Mutton Kinds in Lead

Sheep raising primarily for mutton production and secondarily for wool is steadily advancing in this country. At the present time 45 per cent of the sheep belong to those of the mutton blood, 35 per cent to those of fine wool, and 20 per cent to the crossbreeds. Ten years ago the mutton sheep were 35 per cent of all sheep, fine-wool sheep 41 per cent, and crossbreeds 24 per cent, and consequently during this period one-tenth of the national flock has changed from wool to mutton as the chief purpose. While mutton sheep have thus increased their percentage of all sheep by 10 during as many years, fine-wool sheep have lost 6½ from this percentage and the crossbreeds 3½.

This information is supplied by a recent investigation by the United States Department of Agriculture and accords with the advice and propaganda of the department in recent years in favor of meat production. The tendency in this direction in the sheep industry is doubtless economic, and is not the result of a concerted purpose by sheep keepers to prefer mutton and lamb production to wool regardless of relative profit.

Revolution in Western States.

This revolution of recent years in the sheep industry, which is now presumably continuing, is largely characterized in the national average by the Western and Pacific States, in which more than one-half of the sheep are found mostly on ranges. The fine-wool sheep are 46 per cent of all sheep in that group of States, a loss of 7 in the percentage in 10 years; the crossbred sheep are 22 per cent, a loss of 2½; and these losses have gone to the mutton sheep, which are 32 per cent of all sheep, a gain of nearly 10 in the same number of years.

The greatest advance in this movement has been made in the North Atlantic States, in which farmers' markets are near and the people have an active taste for mutton and lamb. In these States 62 per cent of the sheep are of the mutton bloods, a gain of 20 in the percentage in 10 years; only 17 per cent are fine-wool sheep, a loss of 17; and 21 per cent are crossbreeds, a loss of 3.

The least change in percentages has occurred in the South Atlantic States, where the mutton sheep were formerly a high fraction and are now 68 per cent of all sheep in that region, a gain of 2½ in 10 years; the crossbreeds are 24 per cent, or about the same as 10 years ago, while in all other groups of States they have relatively diminished, and the fine-wool sheep are only 7 per cent, a loss of nearly 3 during the period.

Where Fine-Wool Sheep Are.

At the present time the South Atlantic States have the lowest fraction of fine-wool sheep, 7 per cent, and the North Atlantic States are next with 17 per cent; the highest fraction, 46 per cent, is in the Western and Pacific group, and next below are the South Central States with 30 per cent.

Mutton sheep are as high as 68 per cent of the sheep in the South Atlantic and West North Central States, and as low as 32 per cent in the Western and Pacific States and 44 per cent in the South Central.

Ohio is by far the leading sheep State outside of the Western and Pacific group and has 3,000,000 sheep, about one-half of which are now mutton bloods, while 10 years ago the fraction was nearly two-fifths.

JUDGMENT IN CASE INVOLVING FOOD AND DRUGS ACT AFFIRMED

The Circuit Court of Appeals for the Seventh Circuit has affirmed a judgment of the District Court of the United States for the Southern District of Ohio in a case involving a violation of the food and drugs act and a trade practice in the milk industry that heretofore has not been adjudicated by the courts.

The Union Dairy Co., in conformity with the methods employed by many wholesale milk dealers throughout the country, maintains numerous milk-collecting depots in Illinois. The milk is brought to these depots by the farmers and dumped into vats, where it is cooled and from which it is drawn and shipped to St. Louis, Mo. At this plant it is standardized through the manipulation of the butter-fat content, and partially clarified by means of a centrifugal clarifier. In the criminal information filed in the case that company was charged with having shipped 75 cans of milk from Troy, Ill., to itself at St. Louis, Mo. The milk, according to the criminal information, was adulterated through the addition of water. It was further charged that the milk contained a "filthy, putrid, and decomposed animal substance."

The company, before the circuit court of appeals, claimed that it was shipping the milk from a receiving station in Illinois to itself in Missouri, where the milk was to be treated, the impurities removed, and the milk standardized; that while in transit it was not an article of food such as was defined by the food and drugs act; and that it did not become such an article of food until after treatment.

The circuit court of appeals held that if this contention were sustained it would violate the language of section 2 of the food and drugs act. The first sentence of section 2 reads:

"The introduction into any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia or from any foreign country, or shipment to any foreign country, of any article of food or drugs which is adulterated or misbranded, within the meaning of this act, is hereby prohibited."

DEFINITIONS AND STANDARDS

Definitions and standards for 50 condiments are contained in Service and Regulatory Announcement No. 22, Bureau of Chemistry, United States Department of Agriculture.

The publication also states the position the Department will take with regard to baking powder, "water-ground" corn meal, canned "red beans," canned crawfish, prepared mustard, sorghum and molasses, and figs; use of "mineral oil" as slab dressing in candy manufacture, and "blood orange" flavoring.

Copies of this publication may be obtained upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

AREA OF PASTURE LAND

Of the total farm land at the time of the last census, 1910, which comprised about 879,000,000 acres, somewhat more than one-third was in crops, one-third in pasture, and a little less than one-third in all other kinds of farm lands. Land in improved pasture represents nearly one-tenth of the total land in farms, and is doubtless used for crops from one-half to three-fourths of the time, according to the crop rotation that is practiced. A large part of the pasture land is unimproved, about 99,000,000 acres being in "woodland pasture" and 108,000,000 acres "other unimproved pasture." This information is from Bulletin 626, United States Department of Agriculture.

THREE IMPORTANT PRECAUTIONS

The first aim of the farmer should be to prevent, if possible, the introduction and distribution of destructive diseases on his farm. In order to accomplish this, several precautions should be observed, of which the more important are (1) the disinfection of seed, (2) the location and care of the seed bed, and (3) crop rotation.

In small-grain and hay farming no feature of weed control is more important than the use of clean seed.

Damage By Melon Aphis Can Be Prevented By Spraying

Severe losses caused by the melon aphis, or "melon louse," can be largely reduced and in many cases prevented by the use of control measures upon the first appearance of the insect. Spraying with nicotine sulphate, which so far has given the best results, and other methods of combating the pest are described in Farmers' Bulletin 914, Control of the Melon Aphis, by F. H. Chittenden, issued by the United States Department of Agriculture.

Next to the striped cucumber beetle the melon aphis is the most important cucumber insect pest and probably the most serious enemy of melons and related crops in this country. It works quickly, sucking the juices of the plants and causing them to wither and die, often before insect injury is suspected. Whole fields often are destroyed in a few days.

The melon aphis has more than 40 insect enemies which hold it in check in many regions much of the time, but artificial control becomes imperative when weather conditions are unfavorable to its parasites.

How to Fight the Melon Aphis.

The following directions for combating the pest are given in the bulletin:

(1) Examine the melon or cucumber field in several places from time to time in order that the melon aphis may not cause serious damage before detection.

(2) When the aphis is found, do not wait to find out whether it is going to increase, but begin spraying at once.

(3) Be sure to use the correct formula and apply it properly and thoroughly, making frequent inspections to ascertain that the undersides of the leaves are well covered.

(4) Use plenty of spray mixture—200 gallons to the acre, if necessary—and apply at high pressure, about 150 pounds if possible.

If the work is undertaken in time, the bulletin points out, and directions are carefully followed, there should be no difficulty in protecting a field of cucumbers or melons against the ravages of the melon aphis and obtaining a good yield.

Nicotine Sulphate Spray Favored.

As a spray for the melon aphis and other plant-lice nicotine sulphate thus far has given the best results. The following formula is said to combine the ingredients in the proper proportions:

Nicotine sulphate, 40 per cent, fluid ounces	3
Yellow laundry soap, avoirdupois pounds	1
Water, gallons	25

On account of the low spreading nature of the vine growth, a much more even distribution of the spray is effected by a power sprayer than by a hand-operated machine.

Soaps of nearly every kind are valuable as sprays for the control of the melon aphis and others of its kind. Kerosene-soap emulsion, a standard remedy for sucking insects such as plant lice, is regarded as secondary in value to the nicotine sulphate solution. Where only a few plants are infested and it is possible to direct a strong stream of water upon them the aphis can be checked materially in this manner without use of other substances.

The melon aphis is partial to the cantaloupe and other melons, cucumbers, gourds, squash, pumpkins, and other cucurbits, cotton, okra, and oranges and other citrus fruits, all food plants upon which the insects feed and multiply.

FOREST SERVICE AIDS IN NATION-WIDE HUNT FOR BLACK WALNUT TREES

President Wilson's appeal to the Boy Scouts of America to help win the war by locating supplies of black walnut trees has been followed by arrangements under which the War Department, the Forest Service, and the Boy Scout organization have joined efforts to find the needed timber.

As President Wilson pointed out, the War Department program makes the securing of black walnut lumber for use in manufacturing airplane propellers and gunstocks of the utmost importance. War Department and Forest Service officials are combing the country for black walnut timber, which can no longer be found in abundance anywhere but has to be culled, often as single trees, from mixed forest growths. Much of the black walnut that is left is in farmers' woodlots, and it is primarily to locate this that the Boy Scouts have been called into service. In the aggregate, there are said to be large supplies.

Many thousands of blanks and letters of instructions are being printed by the Government for distribution to Scouts and Scout masters throughout the region in which black walnut occurs in commercial quantities. Individual trees may be found as far east as Connecticut, northward in New York to and beyond the Canadian line, southward almost to the Gulf of Mexico, and westward far into the prairie States, but the Ohio and Mississippi Valley States, the Middle Atlantic States, and the Southern Appalachian region are expected to furnish most of the supply. As reports are turned in by the scout masters, they will be tabulated by the Forest Service and reported to the War Department.

POTATOES—THE GOOD OLD WAYS

Boil them.

Drop unpeeled potatoes into boiling salted water. Cook them for 20 to 30 minutes. Drain off the water at once.

Be sure to leave the skins on—if you peel them you waste time and potatoes.

Don't cook them too long—overcooking makes them go to pieces.

Don't let them stand in the water after cooking—this makes them soggy.

Write the United States Department of Agriculture for new potato recipes.

Soy Beans, Rich in Oil, Now Becoming a Common Foodstuff.

Soy beans have been used and liked in the United States for many years in those regions where they have been grown, and more recently have been used by canners to some extent for general trade. The war situation, with its need for finding new foods and new uses for old foods, has fixed attention on this food crop to such an extent that the name soy bean has now become fairly familiar.

The soy bean, which is well known in the Orient as a valuable food staple, is unlike common legumes, in that it contains much oil and no starch. Oil is obtained by pressing it out of the beans. This leaves a press cake, which still contains some oil and all the rest of the food material originally present in the beans. The cake is readily ground into flour, which is of high food value and can be used in many ways in cooking. It has been on the market to some extent for a long time and used for special purposes. It is now becoming a common foodstuff in some localities, one which is well worth knowing and using.

Experiments with the soy-bean flour in the experiment kitchen of the Office of Home Economics, United States Department of Agriculture, show that palatable dishes can be made by using it as one of the ingredients. Tested recipes using soy-bean flour are given in Secretary's Circular 113 just issued by the department. Copies will be sent free on request from Division of Publications, United States Department of Agriculture, Washington, D. C.

Cheese Making Brings Prosperity to Mountain Districts in Southeast

Cheese making is transforming many isolated mountainous districts of the southeastern States into prosperous farming communities. For many years the remoteness of these districts and the lack of ready communication with the outside world has retarded agricultural development. An interesting story of the rapid development of small cooperative cheese factories which, with the improvement of cows, appears to point the way to financial and industrial independence, is told in Yearbook Separate 737 of the United States Department of Agriculture.

What One Factory Did.

The first cooperative factory in this section was put into operation in the spring of 1915 in a mountainous section of North Carolina. On June 5 a small building only 14 by 16 feet was built and equipped at a cost of only $400 opened for business. Before the end of the year this modest factory returned to its patrons almost $1,500, a net gain of more than $1,200, because the total income for the sale of butter in the community previous to the establishment of the cheese factory averaged less than $300. About six weeks after it was established another factory, built and equipped at a cost of $375, was started in a neighboring community and was conducted with equally good results.

The first factories were established with difficulty because of lack of interest among the farmers, but after the profits began to roll in it was impossible to meet the demand for assistance and no solicitation was needed to induce the people to put up new factories. The first year the factories were opened, about $3,000 worth of cheese was made and sold. In 1916, 26 factories were established in North Carolina, Virginia, Tennessee, and West Virginia. During that year $30,000 worth of cheese was made in North Carolina alone, and the 34 factories then in operation in the States mentioned, produced cheese which sold for more than $125,000. The cost of operation, says the publication, added to what the farmers would probably have received from the milk if there had been no cheese factories, would amount to about one-fourth of the gross receipts. Therefore, three-fourths of this amount, or a little more than $90,000 was newly created wealth.

For Better Farming.

The effect of the increased income from the mountainous farms has brought about a higher standard of living. Farm houses have been remodeled; roads improved; better farm equipment introduced, and more interest has been taken in educational work of all kinds. Though some high-grade cows have been purchased and brought into the section, the greatest progress in dairy improvement is shown by the better care and more skillful feeding of the cows already at hand. The introduction of cheese factories, the publication says, is only the first step forward, but they furnish the financial support for the movement which is slowly but certainly bringing prosperity to these Southern mountain districts.

Report Cost of Producing Apples in a Northwestern Valley

To determine the annual cost of apple production per box and to gather such information as to different methods of orchard management practiced by the growers of the Yakima Valley, Wash., as might have a bearing upon cost of production, specialists of the United States Department of Agriculture in the summer of 1915 conducted a detailed study of 120 representative orchards in that section. Their findings have been published in Department Bulletin No. 614, which is the fourth of a series of bulletins on the cost of apple production in four of the leading fruit-growing valleys of the Northwest.

The Yakima Valley is a specialized apple-growing section in the south central part of Washington. It has a larger acreage of fruit than any other county in the State, in 1914 there being 47,829 acres in fruits, of which 41,955, or 88 per cent, were in apples. In 1916, 7,000 carloads of apples were shipped from this valley.

There are two systems of orchard management practiced in this section, the clean cultivation method and the mulch system. Of the orchards studied, 75 were under the clean-cultural system and 45 under the mulch-crop system. It was found that the annual cost per box for the clean-culture orchards was slightly over 80 cents, while under the other system the cost was slightly over 79 cents. However, the orchards that were cultivated yielded on an average 54 boxes per acre more.

When the total of all costs of the 120 orchards studied was considered, there was found to be an annual acre cost of $345.68, or a fraction of over 80 cents per box. This is figured on the average annual yield of 432 boxes per acre. The two groups of costs which go to make up this total are the labor cost, which amounted to 35 cents per box, and the material and fixed costs, which amounted to a little over 45 cents per box. The labor cost up to the time of harvest amounted to a little over 14 cents per box, or 41.08 per cent of the total net labor cost. Spraying is an annual practice, the codling moth probably being the worst enemy. On an average, four sprayings were made per year and the average cost per acre amounted to $25.14, less than 6 cents per box, or 7.27 per cent of the net cost of production.

GET UP STEAM

Everybody needs full steam ahead. Fire up your body engine with potatoes. They supply the kind of fuel you need for hard work. Eat them three times a day and keep fit.

A 6-ounce potato—medium to small in any part of the country and almost microscopic in the West—provides as much fuel as one and one-half ounces of bread, or a great big slice.

Write the United States Department of Agriculture for new potato recipes.

FIRST ALABAMA LIVE-STOCK TRAIN CARRIED $70,000 WORTH OF PRODUCE

So far as known, the first special train carrying nothing else but live stock was shipped out of Alabama recently, the United States Department of Agriculture announces. This special train left Enterprise, Ala. It contained 23 carloads of live stock, which sold for slightly more than $70,000, averaging more than $3,000 per car. Six additional carloads of live stock were ready for shipment in the same county at the same time.

A neighboring county in south Alabama shipped 29 carloads of hogs the week before that, and still a third county shipped 29 carloads of hogs about the same time.

This section of Alabama has been prosperous throughout the boll-weevil invasion, because farmers have thrown all their energy into diversification of crops and live stock. Most of the land is planted to corn, velvet beans, and peanuts, and the average income per plow and team exceeds that of sections of the State where the proportionate acreage in cotton is much larger.

As is the case in Mississippi, most of the hogs from southern Alabama are shipped cooperatively under plans instituted by the county agricultural agents, who have been active in bringing about this revolution in the agriculture of this section of the State.

An important requirement in weed control is to keep on the alert for new weeds which may be introduced and for native weeds which are developing pestiferous tendencies.

Cheaper Grasshopper Poison Induces Farmers to Combat Pest Energetically

A new formula for a poison in fighting grasshoppers has been tested out and found to be the equal, if not the superior, of the brau-mash formula, at least in the particular region where it has been used, according to a report to the United States Department of Agriculture from the entomologist of Nebraska.

The regular bran-mash formula composed of 25 pounds of brau, 1 pound of arsenic or Paris green, oue-half gallon of molasses, and 6 lemons was found to cost about $1.75 at current prices in western Nebraska.

By using 15 pounds of alfalfa meal and 10 ounces of Paris green, at the same time increasing the molasses to 1 gallon and the water to 6 gallons, and reducing the number of lemons to 3, it was found that the same bulk of poison mixture was obtained for approximately $1 at current prices. The molasses used was cattle molasses, obtained at a beet-sugar factory for about 5 cents a gallon. Alfalfa meal has such swelling power when plenty of water is added that the 15 pounds makes approximately the same amount of poison mixture as 25 pounds of bran.

It has been found that in warm climates, such as that of California, the poisoned baits prepared with alfalfa meal must be used almost immediately, as they sour if kept until the following day. Another objectionable feature is that the meal is usually so finely ground that it can not be distributed without considerable waste by the use of an end-gate grain seeder, such as is employed in some portions of the country in distributing the bait.

The greatly lessened expense of fighting grasshoppers by the use of the alfalfa-meal mixture iuduced many Nebraska farmers to combat the pest much more energetically than they would have done if the more expensive bran-mash formula had been used.

Seedlings of cabbage and other vegetables taken from seed beds or purchased from dealers should be carefully scrutinized for disease before being transplanted. The club-root disease of cabbage is frequently carried into healthy fields by diseased seedlings. Any plants that show swellings on their roots should be discarded and burned.

PLANS CAMPAIGN AGAINST DESTRUCTIVE NEW MOTH

The Bureau of Entomology of the United States Department of Agriculture is preparing to make an exhaustive survey of the Oriental peach moth, an insect of destructive feeding habits that is believed to have been introduced into this country during the past six or eight years in shipments of flowering cherries, peaches, etc., from Japan.

Fruit growers in many States will be asked to watch for the work of this moth, which attacks not only peaches and cherries but apples, quinces, and some other fruits. The bureau will concentrate its inspectiou work in Virginia, Maryland, West Virginia, Peunsylvania, Delaware, New York, New Jersey, and Connecticut, in which States the insect is already present or its presence is suspected. Meanwhile "scouts" will be working north from Florida in the territory east of the Mississippi as the fruit-ripening season advances. All the work will be in cooperation with State officials.

The survey is expected to enable the entomologists to make a more intelligent and specific attack on the insect. The undertaking is regarded as of particular importance at this time, because of the war-time need to eradicate or control every form of insect attacking food supplies.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, Carl Vrooman.

[1] Assistant Secretary of Agriculture, Clarence Ousley.

[1] Assistant Secretary of Agriculture, R. A. Pearson.

Solicitor, Wm. M. Williams.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. Spillman, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, Chas. F. Marvin, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. Mohler, *Chief.*
Studies and gives information regarding live stock; conducts the meat inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, Leon M. Estabrook, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. Howard, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. Nelson, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals; and experiments in fur farming.

Office of Public Roads and Rural Engineering, Logan Waller Page, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. True, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food-dietetics, clothing, and household equipment and management.

Bureau of Markets, Charles J. Brand, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act.

Division of Publications, Jos. A. Arnold, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. Marlatt, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. Haywood, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. V JUNE 12, 1918 No. 45

PRESIDENT ESTABLISHES THREE NATIONAL FORESTS IN EAST

The White Mountain, the Shenandoah, and the Natural Bridge Named

New Federal Domains Cover Territory in Maine, New Hampshire, Virginia, and West Virginia—Final Step in 1911 Act

President Wilson has issued a proclamation establishing three new national forests in the East—the White Mountain, in Maine and New Hampshire; the Shenandoah, in Virginia and West Virginia; and the Natural Bridge in Virginia.

Proclaiming the forests is the final step in carrying out the law for building up eastern national forests through the purchase of lands in the mountains. Ever since the law was passed in 1911 the Government has been engaged in acquiring lands about the headwaters of the principal rivers, both in New England and in the southern Appalachians. As the lands are bought or contracted for they are put under administration as "Purchase areas" pending the time when their accumulation has reached a point justifying the proclamation which gives the lands their final status. The Pisgah National Forest, in North Carolina, and the Alabama National Forest, in Alabama, are the only eastern areas which had received this status before the new proclamations were issued.

White Mountain Region Famous.

The White Mountain National Forest is located in Grafton, Carroll, and Coos Counties, N. H., and Oxford County, Me. The Government has actually taken title to about 267,000 acres and in addition about 124,000 acres more have been approved for purchase, making a total of about 391,000 acres under Federal protection. This forest protects in part the watersheds of the Androscoggin, Saco, Connecticut, and Ammonoosuc Rivers. The White Mountain region, long famous as one of the most important recreation grounds of the Nation and located as it is in close proximity to the most densely populated portion of the country, has great value not only for the protection of stream flow and the production of timber, but also as a public playground, and is administered with a view to its use for all three purposes.

Civil War Trenches in Shenandoah.

The Shenandoah National Forest is situated in Rockingham, Augusta, Bath, and Highland Counties, Va., and Pendleton County, W. Va. The Government has acquired to date slightly in excess of 100,000 acres, and an additional area of approximately 65,000 acres has been approved for purchase, making a total of approximately 165,000 acres under Federal protection. The forest is for the most part on the watershed of the Shenandoah River, and it also protects a portion of the watersheds of the Potomac and the James. On the area, and still intact, are trench systems constructed during the Civil War under the direct supervision of Stonewall Jackson.

The Natural Bridge National Forest is situated in Rockingham, Nelson, Amherst, Botetourt, and Bedford Counties, Va. The Federal Government has actually acquired title to a little over 73,000 acres, and an additional area of approximately 29,000 acres has been approved for purchase. The forest, which protects a portion of the watershed of the James River, does not include the Natural Bridge, but this scenic feature is within 3 or 4 miles of the boundary. It is expected that visitors to the region will take advantage of the opportunities which the forest affords for recreation and outdoor life in the mountains.

STATE LOSSES FROM RODENTS.

Some idea of the loss suffered by individual States from native rodents may be obtained from the following estimate recently submitted to the United States Department of Agriculture by State directors of agricultural extension work: Montana, $15,000,000 to $20,000,000; North Dakota, $6,000,000 to $9,000,000; Kansas, $12,000,000; Colorado, $2,000,000; California, $20,000,000; Wyoming, 15 per cent of all crops; Nevada, 10 to 15 per cent of all crops, or $1,000,000; New Mexico, $1,200,000 loss to crops and double this amount to range.

EXPLAINS LICENSING OF FARM-EQUIPMENT INDUSTRY

Secretary Houston States Department's Policy in Letter to Publisher

Every Effort to be Made to Assure Farmers of Supply, to Assist Manufacturers, Facilitate Shipment, and Correct Abuses

In response to a letter from a publisher of a trade journal requesting information in regard to the licensing of the farm-equipment industry under the recent proclamation of the President, Secretary Houston, of the Department of Agriculture, charged with the administration of the regulations, has written that "every effort will be made to assure to farmers an adequate and continuous supply of farm machinery and equipment at reasonable costs, to assist manufacturers in securing the requisite quantity of raw materials, to facilitate the shipment of these materials to the manufacturers and of the finished products to the distributors and to farmers, and to correct any abuses that may exist which the Food Control Act gives power to deal with."

The Secretary's reply in full is as follows:

Difficulties in Securing Material.

"The production of an adequate supply of farm machinery and equipment and its distribution to farmers at reasonable prices are at all times matters of great moment and of special interest to the Nation. In the emergency through which we are passing it is of even greater moment and interest. You are aware, of course, since the European war began, and especially since we entered the war, not only that prices have greatly increased, but also that the manufacturers have experienced difficulties in different directions—difficulties in securing at all times a sufficient quantity of raw material and prompt transportation.

"There is evidently much disturbance among the farmers of the Nation over the matter. Many representations are made

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WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That are Helping American Farmers to Feed Nations

To Protect Army Stores from Insects.

Millions of dollars' worth of food and clothing intended for use overseas and stored in the Government warehouse at the Bush Terminals, New York, will be protected from damage by insects through arrangements whereby the War Department will use the knowledge on stored-product insects in the possession of the Department of Agriculture. The stored supplies originated in all parts of the world and are likely to contain insects that will multiply and cause great damage in storage, particularly during the summer. To search out and treat infestations in the early stages may save millions of dollars. Dr. E. A. Back, of the Bureau of Entomology, has been placed in charge of the work, in cooperation with the War Department.

Develops a Superior Asparagus.

A new strain of asparagus that is larger, more uniform, and more productive than the old varieties, and, in addition, is highly disease-resistant has been developed through 10 years of work by J. B. Norton, a plant breeder in the Bureau of Plant Industry, who introduced, tested, and hybridized asparagus from all parts of the world. Introduction of the new strain is expected eventually to stamp out the "rust," a destructive disease that swept over the country a few years ago. Commercial quantities of the new type recently sold in Washington, D. C., for more than double the price of other asparagus.

Moving Army of Laborers to Harvest Wheat.

Additional help to harvest the wheat in the Central Western States will be supplied by an army of workmen moving from Texas to North Dakota with the season of harvest. Definite plans for distribution of this labor have been made by the Department of Agriculture's farm help specialists cooperating with the Department of Labor and with county agents in these wheat-producing States. It is estimated that 80,000 men will be needed to harvest the wheat crop in Kansas, and that about 50,000 of this number will be furnished by the towns and cities of that State, while the remainder will go into Kansas from Oklahoma and Texas when the wheat harvest is finished in these States.

Food-Destroying Animals Killed.

Sale of the skins of stock-destroying and other animals killed by nearly 200 animal hunters of the Bureau of Biological Survey of the department has netted during the current fiscal year up to May 20, $79,780.77, according to records of the bureau. This compares with a total of $34,751.10 for the fiscal year 1917, and $8,614.08 for the fiscal year 1916. The increase is due to better organization of the work and to the increased values of furs. The work of the animal hunters is directed primarily against the coyote, bobcat, lobo or timber wolf, mountain lion, lynx, and stock-killing bear, but the trapping operations also resulted in the capture of a large number of badgers, civet cats, foxes, martens, opossums, raccoons, skunks, and weasles. From the beginning of this work in the fall of 1915, when it was started on a small scale, up to January 1, 1918, more than 1,201 wolves, 51,230 coyotes, 144 mountain lions, and 6,521 bobcats had been killed by trapping and shooting, besides great numbers destroyed by carefully conducted poisoning campaigns.

Protecting Army Remounts from Disease.

Forty-seven additional veterinarians, making a total of 70, have recently been detailed by the Bureau of Animal Industry to protect horses, which are being transported for war purposes, from influenza, distemper, or shipping fever, diseases which have caused enormous losses.

Weather Bureau Aids Aviation and Artillery Service.

In cooperation with the Signal Corps, United States Army, the Weather Bureau is providing and maintaining for the duration of the war areological and meteorological observations at a number of aviation and artillery fields. For use at these fields tables of mean values of atmospheric pressure, temperature, and density and a paper on "Meteorology and Aeronautics" have been published.

In connection with searchlight tests conducted in February and March at Washington by the Engineer Corps of the Army, the Weather Bureau made some kite flights at night. Other flights were made in daylight in connection with studies of atmospheric electricity conducted by the Bureau of Standards.

Food Leaflets in Foreign Languages.

The United States Food Leaflets recently published by the Department of Agriculture and the Food Administration have been translated in some States by local representatives into 11 foreign languages and are now being distributed among foreigners in the United States. Twenty leaflets, each carrying its message of food sense and food economy in four pages, make up the series. Besides the English version they have been published in Yiddish, Armenian, Syrian, Italian, Polish, Finnish, Portuguese, French, Greek, Swedish, and Lithuanian.

State Legalizes Municipal Fuel Yards.

Mississippi has enacted a law authorizing the establishment and maintenance of municipal wood and coal yards during the period of the present war and for one year thereafter, as a means of meeting the fuel shortage. This is said to be the first legislation of the kind by any State. Municipalities taking advantage of this law may provide the necessary machinery, transport, sell, and deliver fuel, and are authorized to use for this purpose general municipal funds, and also, with certain restrictions, to borrow money if necessary.

More Poultry and Eggs on the Way.

Four district men and 36 State leaders, all trained poultry specialists, are carrying out the Department of Agriculture's program to secure large increases in poultry and egg production this year. In addition to these workers there are 11 extension poultry club men who are encouraging more efficient poultry production among the boys and girls in their various States. Recent reports from these poultry extension specialists indicate that normal production will be maintained in practically every section of the country this year, in which they are working, and in many localities an increase over previous years is expected. The appeal made by department specialists to city people to increase food production by utilizing their table scraps in feeding small back-yard flocks of hens is meeting with marked success.

The Department's Service Flag.

In front of the main building of the Department of Agriculture hangs a big service flag with the numerals "1,196." Since the flag was made the number of former regular members of the department now in the Army or the Navy has risen to 1,537. In addition, 4,511 employees, including 958 women, have been lost to the department in other ways since the declaration of a state of war with Germany. Most of the 6,048 who have left the department's service are experts in their fields and were performing

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Keep the Henhouse Free of Pests— Here are Best Powders and Sprays

Fowls are infested by two kinds of body parasites—lice and mites. Lice live continuously upon the birds. The common mite feeds upon them on the roosts at night, and after feeding secretes itself in the cracks and crevices about the roosts.

There are many different kinds of poultry lice. Those most common on fowls are—the body louse, yellowish in color and about one-tenth of an inch in length, which remains on the skin of the fowl; the shaft louse, somewhat smaller and very pale in color, which is usually seen on the shafts of the feathers; and the head louse, a large gray species which is most frequently observed on the heads of young chickens.

Lice are not usually very abundant on healthy fowls which are kept under sanitary conditions and provided with dust baths. They multiply rapidly upon birds of low vitality and sluggish temperament, and are quickly distributed through flocks upon premises where attention to cleanliness is indifferent.

Individual Treatment Advisable.

For novices in poultry keeping, and with small flocks generally, it is advisable to make sure that the flock is free from lice by giving the birds individual treatment, which will secure that result. The most universally procurable article for this purpose is powdered sulphur. The method of applying this is to hold the bird by the feet, head down, and dust the sulphur freely into the feathers, using either a small insect-powder gun, or a can with a perforated cover. Pyrethrum may be used in the same way. Neither of these remedies will thoroughly and permanently rid poultry of lice. When they are used treatment must be repeated at more or less frequent intervals, as may appear necessary.

By using commercial sodium fluorid in the form of powder, or as a dip, all species of poultry lice may be destroyed at one application. As the high efficiency of sodium fluorid in destroying lice on poultry is of recent discovery the material is not ordinarily found in all drug stores. With a demand for it, however, local druggists will secure supplies. Poultry keepers who desire to thoroughly eradicate lice from their flocks should write the United States Department of Agriculture, Washington, D. C., for Farmers' Bulletin 801, which gives, with full details of the use of sodium fluorid, complete information on the control of mites and lice.

The common chicken mite is a very small gray insect which, when it has filled itself with blood, becomes bright red, hence the name "red mite" by which it is often called. It may be discovered, if present, by looking on the under sides of the roosts and nest supports, and in the wall crevices near them. Where the mites are very abundant they may be found in large masses in such places. They also frequent the nests of sitting hens. With reasonable attention to the cleanliness of poultry houses, mites are not likely to be troublesome except in warm weather.

Treatment for mites consists in applications of liquid insecticides or disinfectants to them and to the places where they harbor, repeating the applications at intervals of about a week until all are destroyed. Any of the petroleum products commonly used for disinfectant purposes will be found effective for the destruction of mites.

ASK THE COUNTY AGENT.

In securing farm labor the county agent is the key man. These agents, of which there are now more than 2,500, representing the United States Department of Agriculture and the State agricultural colleges, are supported in their respective counties by large and active county and farm bureaus or better-farming associations.

Naturally when a farmer needs help he calls upon the county agent, who, through his close contact with the labor supply of the towns and cities, is able to meet the need. Last year the county agents placed on farms more than 100,000 men. This year they are giving a much larger assistance.

WATCH FOR "LOCUSTS."

Agents of the Bureau of Entomology of the United States Department of Agriculture are requested to report the occurrence this year of swarms of the periodical cicada (17-year locust). The brood of cicada due this year is designated as Brood IX and its main location extends from the southern part of West Virginia across Virginia into North Carolina. Reports of other years indicate also scattering colonies of this brood in northern Virginia and West Virginia and extending northwestward into Ohio.

Brood X, the largest of the 17-year broods, is due next year, 1919, which, therefore, will be the great cicada year of the current 17-year period. Brood X occupies the Ohio Valley and the Alleghany Mountain region from Alabama and Georgia northward through Pennsylvania to scattered colonies in New York and some of the New England States.

HYDROCYANIC-ACID GAS BEST FOR CITRUS SCALE INSECTS

Treatment has Almost Entirely Replaced Spraying for Such Pests

Method Developed in California Has Extended to Other Citrus Regions and Even to Foreign Countries—Usable on Other Trees and Plants

No other gas is so effective in quickly destroying insect pests as hydrocyanic-acid gas, says the United States Department of Agriculture's Farmers' Bulletin 923, Fumigation of Citrus Trees, by R. S. Woglum, which also pronounces the fumigation of plants with the gas to be one of the most important discoveries in the field of insect control.

The success and rapid development of the gas treatment in California, the bulletin says, not only resulted in the almost complete abandonment of spraying as a means of controlling citrus-scale insects, but led to the introduction of fumigation into other citrus regions of America as well as into most important producing foreign countries.

Fumigate Under Tents.

Orchard fumigation for the control of citrus-scale insects consists of covering trees with cloth tents and liberating hydrocyanic-acid gas beneath the tents. Exposure of the insects to the gas for a definite period, varying according to the insect, will result in their destruction.

Directions given in the bulletin are specifically for the control of scale and related insects infesting citrus trees, but with proper modifications they apply to the control of similar insects on other trees and plants. The bulletin deals with methods of procedure, necessary equipment, chemicals of fumigation, and effects of the gas on insects and plants, and includes dosage schedules to be employed for the control of the various common citrus pests.

Fumigate Only at Night.

Fumigation should be carried on only at night, says the bulletin, because the actinic rays of light intensify plant injury, both during and immediately after fumigation. Plants fumigated in direct sunshine or placed in direct sunshine within one or two hours after treatment usually are injured, the degree of injury depending upon the strength of gas used and the temperature of the air. Plants fumigated in diffused

(*Continued on page 8.*)

DESCRIBES BEST EQUIPMENT FOR EGG-BREAKING PLANTS

Bulletin Discusses Sanitary Arrangements for Use of "Seconds"

Insulated, Refrigerated Chill Room, Candling Room, Freezer, and Breaking Room Needed—Product Used Largely by Bakers

To assist egg breakers in selecting effective apparatus and in arranging their plants in a sanitary and economical manner, the United States Department of Agriculture has issued Bulletin 663, "The Installation and Equipment of an Egg-Breaking Plant." The bulletin discusses not only the equipment but the favored arrangement of egg-breaking plants, and illustrates equipment found to be useful.

Egg-breaking plants are located in producing sections and near many of the large markets. They buy the "seconds," which are not marketable in the shell for ordinary food use, but which when properly handled are perfectly wholesome, remove the shells and freeze, can or dry the contents. The frozen, dried, or canned product is sold largely to bakers for use in pastry.

Room for Washing Utensils.

"An egg-breaking plant" says the bulletin, "should have an insulated, refrigerated chill room, candling room, freezer, and breaking room. Adjoining the breaking room should be a room for the washing and sterilizing of utensils.

"The breaking and sterilizing rooms should have a plentiful supply of natural light. The walls and ceilings should be plastered and white enameled, and the floors should be concrete with trapped drains. In the partition between the two rooms a sliding window for the transfer of equipment should be built.

"The freezer should be equipped with shelves of brine piping, through which brine is circulated for freezing the cans of liquid egg.

"The candled eggs should be taken to the breaking room in metal pails, because cases with the accompanying packing material are dirty. Leaking eggs after candling should be placed on special trays for transferring to the breaking room.

The Egg-Breaking Outfit.

"The egg-breaking outfit consists of a tray, on which is placed an open rack for supporting the cups, and a detachable knife on which the eggs are broken. This knife rests in slots in standards fastened to the ends of the breaking tray. Glass cups should be used for the grading of the opened eggs, because certain types of bad eggs can not be detected in nontransparent containers. When whites and yolks are separated it should be done by means of a sanitary mechanical device.

"The egg-breaking tables should be covered with a nonabsorbing material such as metal or porcelain.

"A churn for mixing the egg before freezing should be provided. It should be constructed so that it can be readily washed and sterilized.

"A lavatory with knee or pedal-valve attachment should be installed in the breaking room near the transfer window for the washing of hands after breaking bad eggs.

"White uniforms should be provided for operators in the breaking room.

"The sterilizing room should be furnished with sinks and steam sterilizers. The sinks should be equipped with drains and mechanical rinsers and should be supplied with hot and cold water and connected to trapped drains."

Reserve Supplies of Seed Corn Ready for Federal Distribution

The United States Department of Agriculture announced May 25 that reserve quantities of corn suitable for seed are stored at points convenient for distribution by express to farmers in Illinois, Indiana, Iowa, Kentucky, Minnesota, Michigan, Missouri, Nebraska, Ohio, Pennsylvania, and Wisconsin. This corn is intended for late planting and replanting and can be purchased from the department for cash at cost, as provided by law.

Farmers needing seed corn should get in touch at once with their county agents for detailed information regarding the kind of corn, the price, and how orders should be placed for it. Where there is no county agent inquiries should be addressed to the nearest of the following officials in charge of the seed-corn distribution: Illinois, Wm. G. Eckhardt, 120 West Adams Street, Chicago, Ill.; Indiana, G. I. Christie, Lafayette, Ind.; Iowa, R. K. Bliss, Ames, Iowa; Michigan, R. J. Baldwin, East Lansing, Mich.; Minnesota, A. D. Wilson, University Farm, St. Paul, Minn.; Nebraska, Prof. W. W. Burr, Lincoln, Nebr.; Ohio, C. S. Wheeler, Ohio State University, Columbus, Ohio; Wisconsin, C. P. Norgord, Madison, Wis.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces that on June 25, 1918, there will be an open competitive examination for investigator in grain dockage, for men only, to fill two vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C. Salary, $2,000 to $3,000 a year. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Laboratory helper in soil physics (male and female), to fill vacancies in the Bureau of Soils, Department of Agriculture, for duty at Washington, D. C., or elsewhere, at $1,000 a year. Examination, July 2, 1918. Applicants should apply for Form 1312, stating the title of examination desired, to the Civil Service Commission, Washington, D. C.

BOY SCOUTS PERFORM PATRIOTIC SERVICE IN LOCATING "LIBERTY TREES"

In connection with the black walnut census which President Wilson has asked the Boy Scouts of America to undertake, Henry S. Graves, the Chief of the United States Forest Service, has written a letter to the Boy Scouts explaining why the need for the work is urgent.

"The tremendous forest resources of the United States," Col. Graves states in the letter, "will undoubtedly be a very important factor in the winning of the war for the allies. One of the most essential timbers for war purposes, as the President points out, is the black walnut. With the exception of mahogany, which has to be imported and thus burdens the shipping facilities of the country, no other wood is so well adapted for airplane propellers.

"Since four or five propellers are required for each airplane and since black walnut is scarce and only the best grade can be utilized for this purpose, it is important for the Government to know immediately the location of all available supplies. Walnut is also the chief wood used for gunstocks.

"I believe that the Boy Scouts are performing a most valuable patriotic service in undertaking this work. Let me urge you to impress upon the farmers of the country the importance of properly conserving their forests and especially propagating such valuable species as the black walnut, which has appropriately been called the Liberty Tree."

Drainage water or the run-off during heavy rains probably furnishes one of the most important means for the dissemination of plant diseases and has been found in many places to explain the presence of a disease in fields where cabbage or other crucifers have never before been grown.

THIS ANT GIVES AID AND COMFORT TO ORANGE'S ENEMIES

Charge Against Argentine Pest, Control of Which is Described

Prevents Enemies of Mealy Bugs and Other Soft Scales from Doing Effective Work—Trapping and Poisoning are Recommended

The chief importance of the Argentine ant in orange groves is due to the fact that certain injurious scale insects become much more abundant as the result of its presence and that it fosters mealy bugs and aphids, according to Farmers' Bulletin 928, "Control of the Argentine Ant in Orange Groves," by J. R. Horton, published by the United States Department of Agriculture. This ant is very fond of the sweet substance known as honeydew excreted by mealy bugs and other soft scales, and is always very attentive to them and prevents many of their insect enemies from approaching them. Thus the natural enemies of these pests are hindered in carrying on their good work, and as a result some of the soft scales become excessively abundant.

The armored scales, of which there are several that feed upon orange trees, are not protected by the ant; but in patrolling the trees constantly in large numbers in search of insect prey the ant hinders, to a certain extent, the work of the natural enemies of this class of scales. The ants also eat all insects that they can capture except those supplying honeydew, and therefore they disturb certain enemies of the armored scales and perhaps occasionally feed on the eggs of some of them.

Control Measures.

In Louisiana, where the Argentine ant was introduced a quarter of a century ago, the preventive measures are: (1) A general improvement in orchard cultural practices, including the control of such orchard pests as the armored scales, the white fly, and the rust mite; and (2) direct measures for the destruction of the ant colonies by the use of traps. By far the best and most practical means of destroying the ant in Louisiana is by trapping. It is the only method adapted to ant destruction in large groves and can be used equally well with a few trees. The trapping method is based on the fact that the ants can be induced to concentrate in artificial nests to avoid rain, and can there be conveniently killed by fumigation. The successful orange growers find that a number of small traps, usually 25 per 100 trees, is preferred to a smaller number of large ones. In order to induce more rapid concentration of the ant colonies in the traps, the orchard as far as possible should be kept free from suitable natural nesting places such as loose boards, piles of branches or weeds or any other rubbish.

Use of Poisoned Baits.

In some cases poisoned sirups and other baits have proved successful in controlling the ants. When this method is used it is desirable that all sources of food other than the poisoned bait be eliminated so far as possible.

In Louisiana orange groves the extensive use of adhesive and other repellent mixtures for banding tree trunks to keep out ants is not recommended in view of the more positive method of destroying them by trapping; but in the citrus-fruit sections of California this method is more generally and successfully employed, and the ants are reduced in numbers by the use of poisoned sirups. In California the armored scales are controlled by standardized methods of fumigation, and regular cultivation is more generally practiced than in Louisiana.

Every Loafer Put to Work Releases a Man Who May Help on a Farm

Work or fight!

The Government makes that mandatory upon every man within the draft age.

Self-respect makes it mandatory upon every man of every age.

If, perchance, there are any idlers and loafers continuing to lead lives of uselessness in your town despite war needs for man power, you can do a great deal to cause them to change their course. You can make a complaint to the sheriff or chief of police or any officer, charging them with vagrancy. If the vagrancy laws are not being strictly and unrelentingly enforced in your community, yours is one of the very few places in the United States where those laws are not being enforced. You can help to see that they are enforced. You can see that loafers in your section get a job or go to jail. Every loafer put to work releases a man who may help on the farm.

Farmers need hands. Soldiers must have food. Farmers can't produce food unless they have help. The loafer is aiding the enemy whether he means to do so or not. The man so dead of spirit as not to realize his patriotic obligation must be forced to see it. Give the loafers of your town a straight-from-the-shoulder understanding of their alternatives. This is no time for word mincing or baby talk.

Make him go to work or go to jail.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended June 1, 1918:

A Farm-Management Study in Anderson County, S. C., Department Bulletin 651.

Grain-Dust Explosions, Department Bulletin 681.

Marketing Butter and Cheese by Parcel Post. Farmers' Bulletin 930.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

TO DISCUSS TENTATIVE STANDARDS FOR BUTTER IN PUBLIC HEARINGS

Public hearings on tentative standards for butter, to be held in Washington, D. C., at the Bureau of Chemistry, June 24, 1918, and at the St. Paul Hotel, St. Paul, Minn., on June 19, 1918, are announced by the joint committee on definitions and standards, consisting of representatives of the United States Department of Agriculture, the Association of Official Agriculture Chemists, and the Association of American Dairy, Food, and Drug Officials. All persons interested are invited to attend. Those who desire may present their views in writing to the secretary of the committee, Bureau of Chemistry, Washington, D. C., on or before the date set for the hearings.

The committee desires to obtain from the trade and others their views with respect to whether a standard for butter should be based upon butter fat; butter fat and water; butter fat, water, and casein; or butter fat, water, casein, and salt, and as to what the limit or limits of composition should be, according to reasonably good commercial practice. The Washington hearing will be held at 10 a. m., in the Bureau of Chemistry building, 216 Thirteenth Street SW. The St. Paul hearing will be held at 10 a. m. in the St. Paul Hotel.

Here are some safe figures about what can be expected of a back-yard flock. Each hen in her pullet year should produce 10 dozen eggs. The average size of the back-yard flock should be at least 10 hens. Thus each flock would produce in a year 100 dozens of eggs which, at the conservative value of 25 cents a dozen, would be worth $25. But the 100 dozen is more important than the $25.

Difficulties in Obtaining Trained Workers Indicated by Department's Experience

Some indication of the difficulties experienced by the United States Department of Agriculture in its efforts to stimulate production; to assist the farmers of the Nation in improving and extending their operations in combating animal and plant diseases and insect pests and in other directions; to maintain the efficiency of the Meat Inspection Service and of the national forest organization; and properly to administer the 31 regulatory laws under its jurisdiction is given in a statement recently issued by the department.

According to this statement, 6,048 regular members of the department have left the service to engage in other occupations or have entered the military or naval service since the declaration of a state of war with Germany on April 6, 1917. Of this number, 1,537 have joined the military and naval forces, and the services of 4,511 employees, including 958 women, have been lost to the department in other ways. The State Relations Service, for instance, which supervises the agricultural-extension work in cooperation with the State agricultural colleges, has lost 867 men and 550 women; the Forest Service, 729 men and 89 women; the Bureau of Animal Industry, 1,312 men and 55 women; the Bureau of Markets, 293 men and 47 women; and other branches, such as the Bureau of Chemistry, the Bureau of Plant Industry, and the Weather Bureau have been heavily drawn upon. Most of these employees are experts in their particular fields, and were performing important duties in the department which required long training and peculiar qualifications—some of them very special technical qualifications.

Under the Food Production Act of August 10, 1917, the Congress made available to the department an additional appropriation of $11,346,400 for the extension and development of its activities in many directions and directed the department to carry out its intentions in this respect. The department, therefore, has been in the position of having to increase its forces very considerably when, at the same time, it has been losing large numbers of its most effective and trained employees. The difficulties in securing men of the requisite training and of retaining those already in the service have been very great.

EXPLAINS LICENSING OF FARM EQUIPMENT INDUSTRY

(Continued from page 1.)

that the prices of farm machinery are unduly high. Others are made that difficulties are experienced in securing certain kinds of machinery within a reasonable time. Clearly, there are many questions that can be determined only by impartial authority, and it seems highly wise, in the present situation, that all matters of such interest should be considered formally by the Government, and not only that all abuses, if any exist, should be corrected, but that all proper assistance should be furnished to all parties in carrying on their legitimate enterprises under as favorable circumstances as possible.

"Partly for the reasons indicated, the farm-machinery industry, like a number of other industries of the Nation, is being placed under license under the terms of the act, commonly known as the Food-Control Act, which was approved on August 10, 1917. Section 5 of that act is the licensing section, and its language indicates the purpose in mind. As indicated, the President is authorized to issue licenses and prescribe regulations for the same and ' 'requirements for systems of accounts and auditing of accounts to be kept by licensees, submission of reports by them, with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the place of business of licensees. Whenever the President shall find that any storage charge, commission, profit, or practice of any licensee is unjust, or unreasonable, or discriminatory and unfair, or wasteful, and shall order such licensee, within a reasonable time fixed in the order, to discontinue the same, unless such order, which shall recite the facts found, is revoked or suspended, such licensee shall, within the time prescribed in the order, discontinue such unjust, unreasonable, discriminatory, and unfair storage charge, commission, profit, or practice. The President may, in lieu of any such unjust, unreasonable, discriminatory, and unfair storage charge, commission, profit, or practice, find what is a just, reasonable, nondiscriminatory, and fair storage charge, commission, profit, or practice, and in any proceeding brought in any court such order of the President shall be prima facie evidence.'

To Survey the Industry.

"This section also provides proper penalties. It will therefore be necessary to survey the industry with a view to take such action as may be necessary with reference to accounting to discover whether the commissions, profits, or prices in the industry are unjust, unreasonable, discriminatory, and unfair; and, if so, to cause their discontinuance.

"I need scarcely say that it will be the aim of the authorities handling this matter, while protecting the consumers against any unreasonable practices or against profiteering and attempting to aid them in securing their equipment at fair prices, to deal absolutely fairly and justly with the industry and to assist it, in any proper way, in securing the requisite materials and the necessary transportation, and in promoting such economies as may be feasible.

"You will observe that the law does not provide for direct price fixing for farm machinery. It is unquestionably true, however, that the power to prevent unfair commissions, profits, or practices may indirectly materially affect prices.

Every Effort to Assure Supply.

"I am inclosing, for your information, a copy of a statement which explains what is meant by the phrase 'those specifically exempt from obtaining a license under the Food-Control Act.'

"It is impossible at this stage to give any detailed statement regarding the action to be taken by the department under the President's proclamation. I can only say that every effort will be made to assure to farmers an adequate and continuous supply of farm machinery and equipment at reasonable costs, to assist manufacturers in securing the requisite quantity of raw materials, to facilitate the shipment of these materials to the manufacturers and of the finished products to the distributors and to farmers, and to correct any abuses that may exist which the Food-Control Act gives power to deal with."

The Food-Control Act expressly exempts retailers as such from the licensing requirements and defines a retailer as "a person, copartnership, firm, corporation, or association not engaging in the wholesale business whose gross sales do not exceed $100,000 per annum." However, under the provisions of the Food-Control Act, retailers will not be allowed to profiteer; under the regulations issued with the President's proclamation retailers engaging in such practice will not be able to secure a supply of farm equipment.

The regulations provide that a licensee shall not, without the express sanction of the Secretary of Agriculture, sell any farm equipment to any person engaged in the business of selling or utilizing such equipment, if the licensee has knowledge that such person, after the regulations became effective, has violated the provisions of the Food-Control Act by making an unjust or unreasonable rate or charge in selling or otherwise handling or dealing in such equipment or by holding, contracting for, or arranging for a quantity in excess of the reasonable requirements of his business for use or sale by him for a reasonable time.

Machinery Instead of Farm Hands One Way Out of Labor Problems

Farm machinery makes it possible in some places and at sometimes for one man to do the work that two did before.

"On a recent trip through the corn-belt States I saw on one farm two big strong men, each with a team of horses and a single moldboard plow, following each other around the field," said G. I. Christie, assistant to the Secretary of Agriculture, who is supervising the department's farm labor activities under the direction of Assistant Secretary Ousley. "On an adjoining farm a boy not more than 17 years old was driving four big horses hitched to a two-furrow plow and doing a work equal to if not greater than that accomplished by the two men.

"On another farm there were two men on a wagon spreading manure with forks, while close by another farmer with three horses and a manure spreader was accomplishing a larger amount of work in a more efficient way.

"In a similar way the double cutaway harrow, the wide cutter bar of the mower and the binder, the sheaf carrier on the grain harvester, the milking machine, the farm tractor, haying tools, and other machinery are making it possible for farmers to handle their work with a materially reduced number of men."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

(Continued from page 2.)

important duties in the department which required long training and peculiar qualifications—some of them special technical qualifications. The department has been in the position of having to increase its forces greatly to perform its old duties and meet the war-time demands for extended operations while at the same time it has been losing large numbers of its most effective and trained employees. The difficulties in securing men of the requisite training and of retaining those already in the service have been very great.

Reduction in Hog Cholera Losses.

One hundred and sixty trained veterinarians of the Department of Agriculture are working in 33 States, in cooperation with agricultural colleges, State authorities, and local veterinarians, to control hog cholera. The effectiveness of their efforts and the success of modern methods of combating this disease is shown by the fact that during 1914 the hog mortality from disease was 7,000,000 head, as compared to 3,000,000 in the year ending March, 1918, 90 per cent of the deaths being due to hog cholera. The losses in 1914 were equivalent to the normal consumption of pork and pork products by the entire population of the United States for 37 days.

Three New National Forests.

President Wilson has issued a proclamation establishing three new national forests in the East—the White Mountain in Maine and New Hampshire, the Shenandoah in Virginia and West Virginia, and the Natural Bridge in Virginia. Each forest represents the final step in carrying out the law passed by Congress in 1911 providing for the purchase by the Government of forest lands on the watersheds of navigable streams. Additional lands which have been purchased in the White Mountains and Southern Appalachians will be proclaimed national forests as their accumulation reaches a point justifying the step.

Farmer Attains "Efficiency."

To show how farmers of the United States are meeting the shortage of farm help a field agent of the Bureau of Crop Estimates in a recent report told of seeing a farmer in Indiana driving a team of six horses hitched to a disk plow and leading three horses drawing a harrow. He was working nine horses and two modern farming implements, and doing the work of several men and teams under the old system of farming.

Spraying "Circles" for Farmers.

Community cooperation in spraying, particularly in the control of such diseases as potato late blight and tomato leaf spot, is urged by the United States Department of Agriculture. The department is suggesting to county agents and extension pathologists the early organization of such spraying "circles" to deal more effectively this year with such destructive plant diseases. A community spraying outfit with a man and team continuously employed throughout the season is both economical and efficient, department officials say, and proved a successful plan in Vermont and New York last year. In one New York community the average spraying cost per acre for the season was as low as 65 cents, while the cost of one application averaged 13 cents an acre. Detailed reports of the organization and operation of the community spraying circles as they were conducted in Vermont and New York are being made available by the department to workers.

A Guide to Baking.

A guide to baking with helpful facts briefly told has been issued by the Office of Home Economics in the form of a card to be hung in a convenient place in the kitchen. It carries the message of saving wheat by the use of substitutes and gives amounts of substitutes equal to one cup of flour. Good combinations of substitutes, with cautions to be considered in their use in baking, are also given. An old recipe for making bread is compared with a new one in which 1¾ cups of barley and 1 cup of corn flour take the place of 2 cups of wheat flour.

Cooperate in Crop Estimates.

Cooperation in Wisconsin between the Bureau of Crop Estimates and the State department of agriculture is proving very satisfactory, according to expressions of State officials. The reports are said to be more dependable because of better sources of information and better organization secured through the cooperative arrangement, which has eliminated duplication of work and expense. Similar cooperation has been established in Utah, Missouri, and Nebraska, and is under consideration in other States.

Sheep Specialists Aid Beginners.

The sheep-extension specialists appointed by the Department of Agriculture and now at work in 15 States are giving special assistance to prospective sheep raisers in aiding them in procuring satisfactory stock and in providing necessary equipment to insure successful outcome of the new ventures. In this way people who are unable to retain for breeding purposes the full number of the female increase of their flocks are arranging through the extension specialists and local county agents to have their surplus stock go into the hands of other persons who are looking for stock. This has been an important factor in conserving breeding stock which might otherwise have gone to the market for immediate slaughter.

What Meat Inspection Costs.

In the fiscal year 1917 the cost of the Federal meat inspection was about 5½ cents for each of the 63,000,000 animals slaughtered. This covered the entire service from the first inspection of the live animals to the final examination of the meats in the finished products when ready for delivery to dealers or consumers.

Extend Livestock and Meats Service.

Local offices of the Bureau of Markets have been opened in East St. Louis, Salt Lake City, Pittsburgh, Pa., and Louisville, Ky., to handle reports on live-stock movement and meat-trade conditions at these markets.

In the improvement of beef cattle care has been taken to develop to the greatest extent those portions of the body from which are secured the high-priced cuts of beef. These points should be kept in mind when selecting breeding animals.

Plans Under Way to Insure Adequate Wheat Production in U. S. in 1919

Indication that early steps are being taken by the United States Department of Agriculture to insure an adequate production of wheat in this country next year is shown in the following letter from Assistant Secretary R. A. Pearson to Prof. G. I. Christie, director Indiana Committee on Food Production and Conservation of the State Council of Defense, which was read at a meeting of this committee held at Indianapolis May 14. Mr. Pearson's letter is as follows:

"Replying to your inquiry of the 6th instant regarding the plans of this department with respect to the insuring of an adequate production of wheat in this country next year, 1919, I would say that the subject is already under consideration by the department. As you, of course, appreciate several important determining factors are still in doubt. This is true with respect both to the approximate wheat needs of the world next year, which are more or less affected by the magnitude of this year's crop, and the conditions in various portions of this country, which necessarily determine to a considerable extent the acreage that it may be practicable to put in. Taking into account such information as we now have, it would appear that it would be highly desirable for this country to maintain approximately the acreage of winter wheat sowed last fall. This would seem especially true in the corn-belt States, where wheat is a relatively sure crop and constitutes an important feature of the approved crop rotations, bearing especially in mind the important relation that the wheat crop of this region bears to the seeding down of the land with clover and timothy.

Importance of Disease-Free Seed.

"One of the important things to look out for early in the season is the location of varietally pure, disease-free seed of thoroughly tested and approved varieties. This needs the attention of the farmers themselves as well as by the extension forces while the crop is growing and available for field inspection. In view of the advance made last year in this direction, it should be possible to secure a much higher average quality of seed wheat in most sections than has been used in former years.

"The importance of early plowing where summer fallowing is practiced and where wheat is to follow wheat or oats should also be emphasized, and especially the thorough tillage of corn that is to be followed by wheat. In view of the earlier spring, it would seem reasonable to expect that the wheat acreage of the corn-belt States can be put in on a better prepared seed bed than last year, provided the seasonal conditions continue to develop normally. Numerous other important features, such as labor supply, availability of fertilizer, farm machinery, etc., are being considered by the department for comment when fuller data are available. It is believed that through such early consideration as your committee contemplates in Indianapolis at its meeting on the 14th instant helpful information regarding special problems, more or less local, may be developed which will have important constructive value in planning the work of the season."

HYDROCYANIC-ACID GAS BEST FOR CITRUS SCALE INSECTS

(*Continued from page 3.*)

light appear to be no more injured than those fumigated in darkness.

Trees of the first row fumigated at night and those of the last row fumigated in the morning frequently are more or less injured. In the former case, injury resulted from operations being begun before sunset; in the latter from work being continued after sunrise.

Guard Against Injury to Plant.

Since a much greater strength of gas is required for some insects than for others, and because different plants vary widely in their power to withstand the poison, it is necessary to consider carefully the plants to be fumigated. The foliage and branches of orange, lemon, and grapefruit trees will stand without severe injury a strength of gas sufficient to destroy most of the scale insects which affect them. Apple, peach, pear, and other deciduous trees in dormant condition can be fumigated without injury with a strength of gas greater than it would be advisable to use on citrus-fruit trees.

SHEEP INDUSTRY WILL STABILIZE FARMING

The continued prevalence of high wool and meat values has placed the sheep business in a new light. The result will be that this phase of animal husbandry will contribute materially to the Nation's food and clothing supply. It will also add stability to our systems of farming and play an important part in the more complete utilization of our agricultural resources.

Peanut butter, rich in fat and protein, is not only a butter substitute, but a substitute for meat.

LIME SULPHUR, IN THREE SPRAYS, WILL CONTROL CITRUS THRIPS

Plain lime-sulphur solution applied in three successive sprays will enable a satisfactory control of the citrus thrips, an insect which is rapidly becoming a menace to the production of oranges, grapefruit, and lemons in California and Arizona. This treatment has been developed in investigations by entomologists of the United States Department of Agriculture, and is believed to be the most reliable of four satisfactory mixtures tried—lime sulphur, sulphur soda, lime sulphur and tobacco extract, and tobacco extract. In a publication of the Department of Agriculture, Bulletin 616, "The Citrus Thrips," J. R. Horton, of the Bureau of Entomology, describes the citrus thrips in this country, its life history and control, and announces the results of extensive experiments in spraying. It is explained that the lime-suphur solution recommended may be either 1 to 56 of the 36° Baumé density, or 1 to 50 of the 33° Baumé density.

Maps presented in the publication mentioned show the distribution of the citrus thrips in California and Arizona, to which States the insect is confined, it is believed. The insect is known to occur in eight counties in California—Sacramento, Fresno, Tulare, Kern, Los Angeles, San Bernardino, Riverside, and Orange. The infestation is most serious in Tulare, Fresno, Riverside, and San Bernardino. In Kern County the insect is increasing rapidly, and with larger plantings doubtless will be quite as injurious as in Tulare County, the writer of the publication believes.

The most important damage caused by thrips is the lowering of the market value of fruit by unsightly scabbing and scarring. The eating quality of the orange is not affected by this damage, but its commercial grading is lowered considerably and the selling price correspondingly reduced. The losses suffered from grade reduction due to thrips in the Lindsay district of the San Joaquin Valley in a season of comparatively light infestation, is given in the bulletin as follows: Forty-three per cent, or 255,742 boxes, reduced to second grade at a loss of 37 per cent a box, making $96,744.54; 23 per cent reduced to third grade at a loss of 65 per cent a box, making an additional $88,914.18, or a total loss of $183,539.34.

The needs and habits of sheep differ widely from those of horses, cattle, and swine, but present no problems that will not be met by interested study and observation supported by satisfactory returns. The way boys in sheep clubs have mastered the principles of sheep raising is ample proof of this statement.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. V JUNE 19, 1918 No. 46

SECRETARY HOUSTON DEFENDS DEFERRED CLASSIFICATION OF DEPARTMENT EMPLOYEES

ARGUMENT SUMMARIZED

Principle of the Selective Draft Has Been Faithfully Sustained

1. The law is a selective-service law.

2. It places upon the local and district boards the responsibility of determining whether a man shall be deferred or placed in class 1.

3. It specifically authorizes the President to exclude or discharge from the draft customhouse clerks persons employed by the United States in the transmission of the mail, artificers and workmen employed in the armories, arsenals, and navy yards of the United States, and such other persons employed in the service of the United States as he may designate.

4. The selective-service regulations authorizes the heads of departments to recommend the deferred classification of employees "who are necessary to the adequate and effective operation of the service in which they are engaged and who could not be replaced without substantial material loss and detriment to the adequate and effective operation of the service."

5. The heads of departments can only make recommendations to the draft boards. Their recommendations are not conclusive. It is up to the draft boards to determine whether the employee should be deferred or placed in class 1.

6. It was necessary for the department, under the food-production act, greatly to increase its forces at the very moment it was losing large numbers of its trained men.

7. The department has lost 6,048 regular employees since the United States entered the war, as follows: (a) 5,090 men; (b) 958 women.

8. One thousand five hundred and thirty-seven employees have entered the military service.

9. Four thousand five hundred and eleven employees, including 958 women, have left the service to engage in other occupations.

10. The Forest Service, for instance, has lost 729 men and 89 women; the Bureau of Animal Industry, 1,312 men and 55 women; the Bureau of Markets, 293 men and 47 women; the States Relations Service 867 men and 550 women; and other branches of the department, such as the Bureau of Chemistry, the Bureau of Plant Industry, and the Weather Bureau, have been heavily drawn upon.

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States It Is Singularly Unjust and Offensive to Say That State and Federal Officers, as Well as Local and District Draft Boards, Were Negligent of National Interests and Desired to Provide Soft Places for "Slackers."

Secretary D. F. Houston has submitted to the Senate Committee on Agriculture a clear and convincing statement regarding the amendment by the House to the pending Food Production Act for 1919 forbidding the payment of salaries under this act to any man who has been placed in deferred military classification on account of his employment by the department.

This amendment, if it remains in the bill, the Secretary says, "will make it exceedingly difficult for the department to carry out its program to secure the increased production of foods, feedstuffs, and live stock, and also to maintain the activities authorized by the Food Production Act. Furthermore, it will seriously interfere with the investigations and activities which the department is conducting at the request of the military and naval authorities, the Shipping Board, and other branches of the Government. To say that all the State and Federal officers dealing with these matters, trying to have the tasks imposed upon them in this emergency by law efficiently discharged, and also that the local and district boards were negligent of

(*Continued on page 2.*)

SECRETARY BAKER INDORSES

Valuable Service Rendered by Department to Military Undertakings

Washington, May 27, 1918.

My Dear Mr. Secretary: I have noted in the newspapers some comment upon the deferred classifications said to have been made by the Department of Agriculture in the draft for military purposes. It occurs to me that the committee of Congress dealing with this subject may be interested to know the facts in the matter, and I am writing this letter in order that you may make any use of it which you see fit.

From the beginning of the mobilization of our Army on the Mexican border, nearly two years ago, the cooperation between the Department of Agriculture and the War Department has been intimate, helpful, and cordial. Through your Bureau of Meat Inspection we were able to protect the Army meat supply, and by the cooperation of other agencies of the Department of Agriculture a successful attempt was made to suppress insect pests, thereby contributing not only to the comfort but to the health of our soldiers.

From the beginning of the present mobilization the Department of Agriculture has placed at the disposal of the War Department without reserve its various resources, has aided us to secure foresters for overseas and United States service, and your personal cooperation with me in preparing draft regulations with a view to having the draft fall justly in the matter of agricultural labor has been most helpful. I do not stop to enumerate the various ways in which the Department of Agriculture has served the War Department and the Army. They were numerous, and every call upon the Department of Agriculture has been cheerfully and fully met.

In the matter of the deferred classification of employees at the Department of Agriculture, I am not aware of any instance in which a questionable classification has been made By the direction of the President the indispensable employees of the Government in the several departments have been given deferred classification upon the recommendation of the head of the department. The object of this direction from the President is obvious. It is necessary that the great departments of the Govern-

ment should continue to operate, and that the expert and trained operatives upon whom their successful work depends should continue to render the greater service by remaining at their posts of civil employment. This is as true of the Department of Agriculture as of any other division of the Government, and the great food needs of the allies and ourselves can not be met unless the Department of Agriculture's work of stimulating greater production is successfully carried forward. Such deferred classifications as have been made at the request of the Department of Agriculture seem entirely justified, and the War Department cheerfully recognizes the fact that the needs of the Army have been considered by you in such deferred classification requests and have met with your approval.

Cordially, yours,

(Signed) NEWTON D. BAKER,
Secretary of War.

Hon. D. F. HOUSTON,
Secretary of Agriculture.

SECRETARY HOUSTON DEFENDS DEFERRED CLASSIFICATION OF EMPLOYEES

(*Continued from page 1.*)

the national interests, and desired simply to provide soft places for slackers, is, to say the least, singularly unjust and offensive. It is equally unjust to the patriotic men who are rendering patriotic service, many of them at no little sacrifice, to characterize them as "slackers." They are not only not slackers but are performing very vital emergency service for the winning of the war."

In addition to this statement, the Senate committee has heard elaborate testimony from officers of the department, who explained the difficulties experienced in securing and retaining trained and experienced men to perform the highly urgent and essential activities of the department.

The facts presented show:

1. That since the United States entered the war the department has lost the services of 6,048 regular employees, 1,537 of whom have entered the military service.

2. That the personal interests of the employees were not considered nor was the employee consulted in any case. Recommendations were made, in accordance with the spirit and purpose of the selective-service law and of the regulations issued by the War Department thereunder, only for men who are necessary to the adequate and effective operation of the service in which they were engaged, and whose qualifications, training, and experience were such that it would be impossible to replace them without substantial material loss and detriment to the adequate and effective operation of such service.

3. That no men have been recommended for deferred classification who were performing purely clerical work.

4. That only 205 men in the District of Columbia, all of whom, with the exception of only 8 administrative assistants performing responsible executive work, are scientific or technical employees, have been deferred on the department's recommendation.

5. That of 5,855 men of draft age in the department, not over 1,700, including county agents and other extension workers, chemists, veterinarians, meat inspectors, and experts in the various branches of agriculture, have been placed in deferred classification at the request of the department. Of these at least 303 were deferred for other reasons, such as dependency, physical disability, and the like, as well as for departmental reasons.

It is hoped that the Secretary's argument and the testimony given by other officers of the department will convince the Congress of the unwisdom of the amendment and that it will be stricken from the bill.

The newspapers of June 15 reported that the Senate committee has agreed to strike out the amendment.

The Secretary's letter and memorandum to Acting Chairman Smith follow.

FOOD PRODUCTION ACT

Its Most Important Provisions and Objectionable Amendments

Hon. Ellison D. Smith,
Acting Chairman Committee on Agriculture and Forestry, United States Senate.

Dear Senator Smith: May I not call your attention to the bill (H. R. 11945) "to enable the Secretary of Agriculture to carry out, during the fiscal year ending June 30, 1919, the purposes of the act entitled 'An act to provide further for the national security and defense by stimulating agriculture and facilitating the distribution of agricultural products,' " and ask that it be given early consideration? It is a very important piece of legislation and I hope that your committee will be able to take it up in the near future.

The bill, as its title indicates, makes provision for the continuation during the fiscal year 1919 of the activities authorized by the food production act of August 10, 1917. This act made available an appropriation of $11,346,400 for the emergency activities of the department, and in addition the urgent deficiency act of March 28, 1918, contained an item of $4,000,000 for the purchase and sale of seed to farmers, making a total of $15,346,400. The estimates for the regular work of the department for 1919, as you perhaps know, were submitted to the Treasury, as required by law, on October 15, 1917. These estimates were prepared without special reference to war conditions, and it was thought best to make provision in them only for the regular work. It was decided to defer the submission of estimates for the emergency activities until later in the year, when the needs for 1919 could be more accurately determined. On March 6, therefore, I transmitted to the Congress an estimate of $19,730,893 for the continuance of the emergency work.

Seed Funds.

The pending bill as reported by the House Committee on Agriculture carried an appropriation of $11,712,263 and also contained a provision making available as a revolving fund during the period of the war the $2,500,000 appropriated by the food production act for the purchase and sale of seed to farmers, as well as the $4,000,000 for the same purpose carried in the urgent deficiency act of March 28, 1918. This represented an increase of $2,865,863 over the amount available during the present fiscal year. The bill as reported was practically identical with section 8 of the food production act, with the exception of the items relating to the purchase and sale of seed, the commandeering of buildings in the District of Columbia, and the mobilization and distribution of labor. Several changes, however, were made in the measure on the floor of the House and separate provision was made for all the lines of work contemplated under the various items. As passed by the House, the measure carries, including the $6,500,000 for the purchase and sale of seed, $17,712,283, an increase of $2,365,863 over the amount available during the present fiscal year and a reduction of $2,018,610 below the estimates and of $500,000 below the bill as reported to the House. It should be borne in mind, in this connection, that the food production act was not approved until August 10, 1917, a month and a half after the beginning of the fiscal year, and that considerable time necessarily elapsed in developing the requisite organization, in locating and securing competent men and women, and in getting the work authorized fully under way. This has been especially true in the Bureau of Markets and in the States Relations Service, which have experienced great difficulty in securing properly qualified assistants. In large measure, therefore, the additional amounts included in the bill under consideration are necessary to provide for the continuation during 1919 *on a full-year basis* of the work authorized by the food production act, with such modifications as experience during the present year and existing conditions seem to warrant.

For Flexibility.

The pending bill is a war emergency measure and supplements the appropriations

made in the regular act. It merely makes provision for the *continuation* of work which was authorized by the Congress at its last session and which is now well under way. It is designed to enable the department to deal effectively and quickly with the many urgent agricultural problems which are constantly arising. It is impossible, of course, to forecast the situations requiring special and immediate action that may develop from time to time. The segregation of the items, as was done on the floor of the House, will make it exceedingly difficult to readjust operations during the course of the year so that these new situations can be dealt with promptly and effectively. I urgently recommend, therefore, that the bill be restored to the form in which it was reported by the House committee. If this can not be done, I hope that your committee will include a provision authorizing the transfer of not to exceed 20 per cent of the funds from one item to another in order that the department may have some degree of latitude in the handling of the appropriations. I suggest, for the consideration of the committee, the insertion of the following language at the end of the bill:

"Such part, not exceeding 20 per centum of the amount appropriated for any of the foregoing items, embraced in any particular group numbered first to seventh, inclusive (or first to sixth, if the labor provision is not restored), as the Secretary of Agriculture may find not to be required for carrying out the purposes of such item, may, by his order, from time to time, be transferred to and used for the purposes of any other such items in the same group as the Secretary of Agriculture may deem necessary."

Attention is called to the fact that a similar provision, authorizing the transfer from one item to another of 10 per cent of the funds carried in the various subappropriations, has been included in the regular agricultural appropriation act for a number of years. This provision was originally inserted to make it possible for the department to meet unusual emergencies that may arise during the course of the year. It is very essential that the department have even greater, or at least similar, latitude in connection with emergency appropriations.

Objectionable Amendment.

The following provision was inserted in the bill on the floor of the House:

"*Provided*, That no part of the money hereby appropriated shall be used in paying salary or expenses of any man who on account of employment in which he is or may be engaged under the provisions of this act has been or shall hereafter be certified by the Secretary of Agriculture or by any other official of the Department of Agriculture for deferred classification, or by action of any other Federal official or authority has been or may hereafter be placed in a deferred class under act No. 12, Sixty-fifth Congress, entitled 'An act to authorize the President to increase temporarily the Military Establishment of the United States,' approved May 18, 1917, or under any act amendatory thereof that has been or shall hereafter be enacted."

This provision, if it remains in the bill, will make it exceedingly difficult for the department to carry out its program to secure the increased production of foods, feedstuffs, and live stock, and also to maintain the activities authorized by the food production act, the continuation of which is provided for in the pending bill. Furthermore, it will seriously interfere with the investigations and activities which the department is conducting at the request of the military and naval authorities, the Shipping Board, and other branches of the Government. The following lines of work, in particular, will be seriously disorganized or greatly disturbed:

(a) *The cooperative agricultural extension work* for the expansion of which an appropriation of $4,348,400 was provided in the food production act.

It has been exceedingly difficult to secure competent men for this work and it has been practically impossible to secure large numbers of men of the requisite training who are not within the draft age. *The county agents appointed under the act usually are men who were brought up on farms, who have supplemented this experience with special training, usually in the agricultural colleges, and who have been returned to their farms and successfully operated them. If they had remained on the farms they would have been entitled under the regulations to deferred classification as skilled farm laborers, as managers or assistant or associate managers of necessary agricultural enterprises, or as heads of necessary agricultural enterprises.*

(b) *The work of the department looking to the eradication of the cattle tick, hog cholera, contagious abortion, tuberculosis, and other destructive animal diseases.*

The importance of this work can not be overestimated. Large numbers of veterinarians have been taken into the Army and it is becoming increasingly difficult to secure qualified veterinarians of any age for the conduct of this important branch of work of the department. The War Department has established a Veterinary Reserve Corps in order to insure a supply of veterinarians for the Army. Those who enlist in this corps are placed in class 5.

(c) *The work of the Bureaus of Entomology and Plant Industry looking to the control of injurious insects and destructive plant diseases.*

The demands for assistance in these directions is so great that it is impossible for the department to comply with all of them. It is especially difficult to secure properly qualified entomologists and plant-disease specialists.

(d) *The work of the Bureau of Markets, including especially the operation of the nationwide market news services.*

It will be very difficult to maintain the work of the bureau on anything like its present basis if the provision is retained in the bill.

(e) *The work, strictly of a war nature, which the Bureau of Chemistry is doing at the request of the War and Navy Departments*, involving the examination of food supplies intended for the Army and Navy.

The supply of competent chemists is limited and great difficulty has been experienced in securing men to carry on this work.

(f) *The work of the Bureau of Biological Survey looking to the control of noxious rodents and predatory animals.*

These statements merely indicate the disturbing effect of the provision on a few of the important lines of work specifically authorized by the food production act. Its consequences will be far-reaching and serious.

Selective Service.

In this connection, the committee's attention is called to the fact that the selective-service act authorizes the President *to exclude or discharge* from the selective draft—"county and municipal officials; customhouse clerks; persons employed by the United States in the transmission of the mail; artificers and workmen employed in the armories, arsenals, and navy yards of the United States; *and such other persons employed in the service of the United States as the President may designate.*"

The selective-service regulations, following this provision of the law, authorize the deferred classification of—

"customhouse clerks, persons employed by the United States in the transmission of the mail, artificers or workmen employed in an armory or arsenal of the United States, *and persons employed in the service of the United States when it is found by the local board that such persons are necessary to the adequate and effective operation of the service in which they are engaged, and that they can not be replaced without substantial, material loss and detriment to the adequate and effective operation of such service.*

It will be noted that the act and the regulations specifically authorize *the exclusion or discharge from the draft* of certain classes of employees, such as customhouse clerks, persons employed in the transmission of the mail, and artificers or workmen employed in an armory or arsenal of the United States. The numbers in these classes are far greater than the number of all the employees of the department within the draft age.

The principle of the selective service law is to insure the *selection* of men for the service which they are best qualified to render, and the local and district boards were created to determine, under certain guiding principles embodied in the selective service regula-

tions, whether registrants should be retained in their present occupations or should be drafted into the military service. The theory of the act and of the regulations is to place upon the local and district boards, composed of local civilians, the responsibility of deciding in what capacity registrants can render the most valuable service to the Nation. The provision in question, therefore, is contrary not only to the principle of the act but also to the policy of the President and of the War Department as embodied in regulations. In promulgating these regulations, the President said:

"We must make a complete inventory of the qualifications of all registrants in order to determine, as to each man not already selected for duty with the colors, the place in the military, industrial, or *agricultural* ranks of the Nation in which his experience and training can best be made to serve the common good. This project involves an inquiry by the selection boards into the domestic, industrial, and educational qualifications of nearly 10,000,000 men."

Careful Consideration.

I have personally considered every case in the department in which deferred classification has been recommended, although, under the regulations, representatives of the department in the field could have been authorized to act. The personal interests of the employee have not been considered and the employee has not been consulted in any case; my recommendation in every instance was based on a cold, official determination of whether or not the employee was necessary to the adequate and effective operation of the service in which he was engaged.

I have no authority to *grant* deferred classifications to anyone, I can merely make recommendations to the local and district boards in accordance with the regulations, and it is within the discretion of these boards to determine, in the light of all the facts presented, including my recommendation, whether the person involved is necessary to the adequate and effective operation of the service in which he is engaged. It is entirely within the authority of the board to refuse to take favorable action upon my recommendation and to order that the employee be placed in class 1 or in another class. Of course, no employees of the department are *exempt* from military service.

Deferred classification has been recommended only in cases of employees whose services were clearly necessary to the work of the department and whose qualifications, training, and experience were such that it would be impossible to replace them without substantial material loss and detriment. In many cases, where it was not entirely clear to me that the employees concerned were, in fact, essential to the effective prosecution of the work upon which they were engaged, I disapproved the filing of the necessary affidavit, although the officials in charge of the work were convinced that the men were necessary within the meaning of the selective service regulations. It should not be overlooked, in this connection, that a large number of the employees for whom deferred classification has been requested because they were necessary to the effective operation of the department were entitled to be deferred under the regulations and have been deferred, for other reasons, such as dependency, physical disability, and the like. I think the committee should know also that approximately 1,550 employees of the Department of Agriculture have entered the military service during the past year as officers, by enlistment, or through the draft, and that approximately 4,500 also have left the department to engage in private or commercial undertakings. Whenever an employee who has been deferred on account of his employment in the department leaves the service, the local board is promptly notified and his status is immediately changed.

Seriously Disorganize Activities.

Of course, the Department of Agriculture is only one of the departments of the Government that have acted in the spirit of the law under the provisions of the selective service regulations. The provision in question, therefore, discriminates against this department, as no such limitation has been placed upon other branches of the Government. If it remains in the bill, it will be necessary to replace with inexperienced men a large number of experienced and trained men who are already in the employ of the department and who are rendering valuable service to the Nation, in many instances at a sacrifice to themselves. It will, to repeat, seriously disorganize and greatly disturb the highly important and essential activities of the department for which provision is made in the pending measure and make it exceedingly difficult to carry out the purposes of the bill.

The following provision also was inserted in the bill on the floor of the House:

"No part of this appropriation shall be available for any purpose unless there shall have been previously issued the proclamation authorized by section 15 of the act of August 10, 1917, entitled 'An act to provide further for the national security and defense by stimulating agriculture and facilitating the transportation of agricultural products,' such proclamation being the prohibition of the use of foods, fruits, food materials, or feeds in the production of malt or vinous liquors for beverage purposes."

I urgently recommend the elimination of this provision. It is entirely foreign to the purposes of the pending bill and has no relation to the item to which it is attached. This item, as you know, makes provision for the development of the cooperative agricultural extension work, which is conducted in close cooperation with the agricultural colleges in the various States.

Farm Labor Funds.

Item No. 7, carrying an appropriation of $500,000, to enable the Secretary of Agriculture to provide for and secure the voluntary mobilization and distribution of farm labor for the production and harvesting of agricultural crops during the fiscal year 1919 was eliminated on the floor of the House. This provision was not included in the original estimates of the department. You will perhaps recall that a bill, H. R. 7795, containing an appropriation of $2,500,000 for this purpose, was passed by the House on March 29, 1918, and is now pending in the Senate. As it did not seem likely that this bill would be acted upon in the near future, the House Committee on Agriculture decided to include an item of $500,000 in the pending bill and to make the appropriation a revolving fund. After discussing the matter with the Secretary of Labor I advised the committee that I thought it very desirable to take this action. I hope very much that the provision will be restored. I am inclosing, for your information in this connection, a copy of my letter to Representative Sherley, dated May 8, which has been printed in the Record.

Immediate Action Necessary.

In conclusion, I wish to emphasize the urgent importance of securing prompt action on the pending bill. While the general provisions of the food production act will continue in effect during the period of the war, the appropriations made by section 8, and also the item in the urgent deficiency act of March 28, 1918, are limited to June 30, 1918. Therefore, the appointments of all members of the department who have been employed under those appropriations will expire on June 30, 1918. Unless these commissions are renewed prior to July 1, the work under way will be seriously disturbed and the employees, having no definite assurance that appropriations will be made for the continuation during the next fiscal year of the work upon which they are engaged, will seek other employment. This would produce a very unfortunate situation in the midst of the crop season when there should be no let up in the department's production, marketing, and conservation activities.

Very truly, yours,

D. F. HOUSTON, *Secretary*.

MAY 25, 1918.

MEMORANDUM FOR SENATOR SMITH

Regarding the proviso in the bill H. R. 11945:

"*Provided*, That no part of the money hereby appropriated shall be used in paying salary or expenses of any man who on account of employment in which he is or may be engaged under the provisions of this Act has been or shall hereafter be certified

by the Secretary of Agriculture, or by any other official of the Department of Agriculture, for deferred classification, or by action of any other Federal official or authority has been or may hereafter be placed in a deferred class under act numbered twelve, Sixty-fifth Congress, entitled 'An act to authorize the President to increase temporarily the Military Establishment of the United States,' approved May eighteenth, nineteen hundred and seventeen, or under any act amendatory thereof that has been or shall hereafter be enacted."

(1) The draft act, so-called, is and was intended to be a selective service act. It was the intention of Congress to make available as many men as might be necessary directly for the Army, but, of course, to have due regard to the other essential services of the Nation so far as practicable.

(2) There were already in the Army and registered under this act approximately 10,000,000 men. There remained at the beginning of the current year, not called into the service, over 9,000,000 registrants. The Provost Marshal General, the urgency of the first draft being over, very properly decided to classify the registrants on a selective basis. The classes were to be arranged in such fashion that those whose services were highly desirable for essential industrial, agricultural, and governmental operations might be disturbed as little as possible.

(3) That the Nation should be in a position to increase its supply of foods, feedstuffs, and clothing and to grow stronger in agriculture while Europe, and especially the central powers, was being weakened needs no emphasis. The food situation in this country when the war broke out was not satisfactory. There had been a short wheat crop and a prospect of a second one, especially on account of winterkilling. Other staple commodities were short. Public sentiment became somewhat hysterical. It was clear that increased demands for foodstuffs would be made upon this country by the allies and that we should do everything possible to meet not only our own national needs, but also those of the allies and, so far as possible, of the neutrals.

Necessary Skilled Labor.

(4) The Provost Marshal General and all others dealing with the matter recognized that necessary skilled labor and necessary farm labor should not be called out if it was possible to avoid it. It became clear that class 1 would contain 2,000,000 or more effectives. Since the classification was made further legislation has provided for calling into the service those who have reached the age of 21 since the selective service act was passed. It is estimated that this will make available for the Army 700,000 or 800,000 more men annually. At the beginning of this year it seemed unlikely that more than 800,000 additional men would be called into the military service during the current year. This was the number indicated some time ago by the Provost Marshal General. Later events indicated the possibility of a larger call.

(5) In view of all the circumstances, the following things were done—and done intelligently and properly—to see that the foundations of the Nation—that is, its food and feed requirements—should not be impaired:

(a) The Secretary of War requested Congress to give him authority to furlough farmers in the National Army in order that they might return to their farms for certain periods if military conditions permitted it. The Congress passed this measure.

(b) Skilled farm labor was given deferred classification, being placed in class 2.

(c) Assistant and associate managers of necessary agricultural enterprises were given deferred classification, being placed in class 3.

(d) Heads of necessary agricultural enterprises were given deferred classification, being placed in class 4.

(e) In order to prevent the possibility of failure of leaders in the agricultural field, it was further provided that a reserve should be made from the first third of agricultural seniors in the agricultural colleges. Similar action had been already taken with reference to engineering students.

The Provost Marshal General did me the honor to consult me frequently in reference to these matters and our views were in accord, as were those of others vitally interested in agriculture. Thus the Nation showed its appreciation of the importance of its food supplies in this crisis and of the position of the farmer as a factor in the war.

Aids to Farming.

(6) The Congress, appreciating the need of further provision to aid the farmers in improving their processes and in relieving them from the economic handicap of plant and animal diseases, insect pests, and predatory animals, the wastes of distribution and marketing, and the like, enacted the emergency food production act, carrying an appropriation of $11,346,400, and directed the Department of Agriculture to carry out the intentions of Congress in this respect. Congress also did other things which I need only hint at. It made available $200,000,000 to facilitate the operations of the Federal Farm Loan Board because of the unusual demands on funds which otherwise might have been invested more freely in such bonds. Furthermore, it made available additional sums to enable the Department of Agriculture to make sure that adequate seed stocks would be available and distributed to farmers at the lowest possible cost for cash.

(7) Under the food production act, the department especially had to extend its efforts to aid the farmers particularly along these important lines:

(a) The cooperative agricultural extension work.

The work of the county agents is too well known to need extended explanation. In this emergency they have not only rendered all the usual services but have assisted the Government in a variety of exceptional ways, cooperating with the Treasury Department, the Red Cross, the Food Administration, and other governmental agencies. The men employed in this work, as a rule, have been brought up on farms, have supplemented this experience with other training, usually in agricultural colleges, and have returned to their farms and have successfully operated them.

(b) The eradication of the cattle tick and the follow-up live-stock movement.

(c) The control of hog cholera, tuberculosis, contagious abortion, and other destructive animal diseases.

(d) The control of predatory animals and noxious rodents.

(All this work had a very definite bearing on the increase of live stock, which was so essential.)

(e) A more extended attack on all sorts of cereal and other plant diseases and insect pests.

(f) Increased assistance to farmers through the Bureau of Markets. As we were calling upon the farmers to produce more food, it was obviously important that we should omit no feasible step to assist them in finding satisfactory markets for their products and particularly for the perishables.

(g) Aiding in every possible way in conserving farm and range products for future use.

(h) The exercise of every effort to assist the farmers in securing adequate supplies of labor for planting, cultivating, and harvesting.

(8) The department also felt it to be of the first importance to see that the great activities in the national forests should be maintained efficiently because of the large livestock, lumber, and water-power interests involved and also to extend its operations at the forest products laboratory to aid the military and naval authorities in developing hardening processes for materials for aeroplanes and especially to aid them in testing the strength of materials. The chemical work of the laboratory assumed very great importance. It was, furthermore, a matter of the greatest moment that the department's activities with reference to inspection of meat supplies not only for the civilian population but also for the greatly increased military forces should be kept at the highest point of efficiency. The activities just mentioned, of course, were supported out of regular funds.

Increased Forces.

(9) *The department, therefore, was in the position of having to increase its forces very*

considerably at the very moment when it was losing large numbers of its most effective and trained employees. Since the United States entered the war 1,537 members of the department have joined the military or naval forces and 4,511, including 958 women, have left the service to engage in other occupations. In all, the department has lost the services of 6,048 regular employees during the past year. The Forest Service, for instance, has lost 729 men and 89 women; the Bureau of Animal Industry, 1,312 men and 55 women; the Bureau of Markets, 293 men and 47 women; the States Relations Service, 867 men and 550 women; and other branches of the department, such as the Bureau of Chemistry, the Bureau of Plant Industry, and the Weather Bureau, have been heavily drawn upon.

(10) *All these services required men of peculiar qualifications—some of them of very special technical qualifications. Individuals doing purely routine clerical work were not involved. Deferred classification was not requested for them.* It became necessary, if the services authorized by Congress were to be rendered—services that existing law required—if food production was to be economically stimulated and the health of the Nation preserved, that deferred classification should be asked for a number of those already in the service; and it further became necessary to add to the forces a number of men within draft age.

There was not available the requisite number of properly trained men without taking some of draft age. In some cases, men over draft age were not willing, or could not, give up their own business, and in other cases they were not qualified for the work. Even with resort to men within draft age, we have not yet been able to secure the requisite number of individuals and we are constantly losing trained and experienced men.

(11) The largest number of deferred classifications was recommended in the following services:

(*a*) Cooperative agricultural extension work.

(*b*) Forestry.

(*c*) Meat inspection and animal-disease control work.

(*d*) Markets.

It was impossible not to carry on these activities. In passing on the cases I did not, as would have been permissible under the draft regulations, leave the matter to representatives of the department in the field or in the bureaus, but I personally reviewed every case.

In the agricultural extension work, in which we are cooperating with the land-grant colleges of the Nation, the recommendations were made in the first instance by the State officers, then examined by the Director of the States Relations Service here in the department, and finally submitted to me. My decision was not conclusive. The matter then had to be passed on by the local and district boards.

Unjust and Offensive.

To say that all the State and Federal officers dealing with these matters, trying to have the tasks imposed upon them in this emergency by law efficiently discharged, and also that the local and district boards, were negligent of the national interests and desired simply to provide soft places for slackers is, to say the least, singularly unjust and offensive. It is also unjust and offensive to say that the hundreds of men who have given their services in these directions, many of them at no little sacrifice, are slackers and unpatriotic. It will not conduce to their state of mind or efficiency to have such an indictment stand and it will make it difficult for the Nation to secure the requisite services. *This is all the more true when we consider that these men have been merely placed in deferred classification under well-understood principles for what are really war services under an emergency war measure and that whenever the situation requires it these men can be called into the military service.*

(12) It will be observed, in examining the selective service act, that the President was specifically authorized "to exclude or discharge" from the draft the following classes of employees: County and municipal officials, customhouse clerks, persons employed by the United States in the transmission of the mail, artificers and workmen employed in the armories, arsenals, and navy yards of the United States, *and such other persons employed in the service of the United States as the President may designate.* The numbers in the classes specifically mentioned are far greater than the number of all the employees of the department within draft age.

(13) The principle of the selective service law is to insure the *selection* of men for the service which they are best qualified to render, and the local and district boards were created to determine, under certain guiding principles embodied in the selective service regulations, whether the registrants should be retained in their present occupations or should be drafted into the military service. *The theory of the act and of the regulations is to place upon the local and district boards, composed of local civilians, the responsibility of deciding in what capacity registrants can render the most valuable service to the Nation.*

Employee Not Consulted.

(14) In recommending deferred classification the personal interests of the employee have not been considered and the employee has not been consulted in any case. *My recommendation in every instance was based on a cold, official determination of whether or not the employee was necessary to the adequate and effective operation of the service in which he was engaged.*

(15) *Deferred classification has been recommended only in the cases of employees whose services were necessary to the adequate and effective operation of the service in which they were engaged and whose qualifications, training, and experience were such that it would be impossible to replace them without substantial, material loss and detriment.* In many cases where it was not entirely clear to me that the employees concerned were in fact essential, I disapproved the filing of the necessary affidavit although the officials in charge of the work were convinced that they were necessary within the meaning of the selective service regulations. It should not be overlooked that a large number of employees for whom deferred classification has been requested because they were necessary for the effective operation of the department were entitled to be deferred under the regulations, and have been deferred, for other reasons, such as dependency, physical disability, and the like.

Other Departments.

(16) Of course the Department of Agriculture is only one of the departments of the Government that have acted, in the spirit of the law, under the provisions of the selective service regulations. The provision in question, therefore, discriminates against the Department of Agriculture, as no such limitation has been placed upon other departments of the Government. *It is contrary not only to the principle of the selective service act but also to the policy of the President and the War Department as embodied in the regulations.* If it remains in the bill, it will be necessary to replace with inexperienced men a large number of experienced and trained men who are already in the employ of the department and who are rendering valuable service. *It will seriously disorganize and greatly disturb the highly important and essential activities of the department for which provision is made in the pending bill and will make it exceedingly difficult to carry out the purposes of the measure.*

(17) Nobody seems to have raised any objection to the proposal for deferred classification for skilled farm labor, for assistant or associate managers of necessary agricultural enterprises, or for the heads of necessary agricultural enterprises.

(18) It may be objected that, by taking farmers with fine qualifications for leadership into the Government agricultural forces, we are impairing the ability of the farmers as a whole to increase production. Of course, just the contrary is the case. The abstraction of the small number of men involved would mean relatively little, but the service these men are rendering in aiding the farmers in the directions indicated does mean a great deal to the Nation.

(19) To what extent the machinery created under the law has been responsible for the results it is difficult to say, but it is certainly true that the farmers with the assistance

rendered, in spite of all difficulties last year planted 23 million acres more of the leading food crops than they did in 1916, produced record crops of most products except wheat—the partial failure of which was in no wise due to them, since they planted a large acreage—and increased the number of all classes of live stock, as follows: Horses, 353,000, or 1.7 per cent; mules, 101,000, or 2.1 per cent; milch cows, 390,000, or 1.7 per cent; other cattle, 1,857,000, or 4.5 per cent; sheep, 1,284,000, or 2.7 per cent; and swine, 3,871,000, or 5.7 per cent.

(Signed) D. F. HOUSTON.

MAY 28, 1918.

ARGUMENT SUMMARIZED

(*Continued from page 1.*)

11. It was essential that the National Forest activities, the meat-inspection service, the technical work of the Bureau of Chemistry, the farm demonstration work, the activities of the Bureau of Markets, and all other important branches of the department, should be maintained at the highest point of efficiency and expanded in many directions.

12. All these services required men of peculiar qualifications—some of them very special technical qualifications.

13. The largest number of deferred classifications was recommended in the following services: (a) cooperative agricultural extension work; (b) forestry; (c) meat-inspection and animal disease control work; (d) markets. It was impossible not to carry on these activities.

14. Under the selective-service regulations the Secretary could have left matters to representatives in the field. He refused to do this, however, and passed on each case personally.

15. In the farm demonstration work, recommendations were made in the first instance by State officers, then examined by the States Relations Service, and finally submitted to the Secretary.

16. The personal interests of the employee were not considered and the employee was not consulted in any case. Deferred classification was recommended only in cases where employees were clearly necessary to the adequate and effective operation of the service in which they were engaged.

17. Individuals doing purely routine clerical work were not involved. Deferred classification was not requested for them.

18. A large number of employees for whom deferred classification was recommended were entitled under the regulations to be deferred, and have been deferred for other reasons, such as dependency, physical disability, and the like.

LET THE BOYS HANDLE SHEEP

While the labor required by sheep raising is continuous, it is not heavy, and if properly supervised and made interesting by financial return can well be performed by boys incapable of other kinds of farm work. This fact should be given consideration in many sections where farm labor is scarce.

Look Out for Cornstalk Borer, Destructive New Pest in the East

One of the most destructive insect pests of corn, known as the European cornstalk borer, discovered in eastern Massachusetts last summer, is spreading rapidly to other neighboring localities, according to entomologists of the United States Department of Agriculture. The most vigorous and energetic action possible will be required on the part of farmers and gardeners, county agents, and entomologists if the pest is to be eradicated or satisfactorily controlled, the specialists declare in a statement just issued.

It is known that shipments of infested ears of sweet corn were shipped last year to practically all the New England States before the presence of the worm was discovered. Corn growers are warned to be on the alert to discover this pest in growing corn or within the stalks of last year's crop, and gardeners are urged to watch for it in such vegetables as tomatoes, beans, and some of the common weeds. In the caterpillar stage this pest when full grown is about 1 inch in length, grayish in color, and covered with numerous small, round, dark-colored specks. Persons discovering the insect are urged to communicate immediately with the State agricultural college or the Bureau of Entomology, United States Department of Agriculture, Washington, D.C.

This pest bores into the cornstalks at the joints beneath the leaf sheaths or into the bases of the ears. As many as two dozen caterpillars have been found inhabiting one dry stalk. The insects pass the winter in the pupal or resting stage protected inside the stalks or stems of corn or weeds of the previous year's growth. When they are found in such places in the spring or summer the dry vegetation should be carefully gathered and immediately burned to destroy the pest.

HOT-WEATHER PRECAUTIONS FOR HANDLING HOGS IN TRANSIT

Every hog that is killed in transit due to overcrowding or mishandling means a loss, at present prices, of probably more than $30 to the shipper as well as a waste of meat needed by the Nation. Mortality in transit or after arrival at the central market can be lessened greatly in hot weather by the practice of the following simple precautions on the part of shippers and dealers:

1. When hogs are very hot, during or after a drive, never pour cold water over their backs.

2. Before loading, clean out each car and bed it with sand which, during dry, hot weather should be wetted down thoroughly. Hogs in transit during the night only are not so likely to be lost from overheating as are the animals shipped in the daytime. With day shipments in hot weather it is highly advisable to suspend burlap sacks of ice from the ceiling in various parts of the car in order to reduce the temperature and, incidentally, to sprinkle the animals with cool water. The ice sometimes is placed in sacks on the floor, but the animals are likely to pile and crowd around the cakes so that only those close to the ice are benefited. The ice should be sufficient to last to the destination.

3. Do not overload. Crowding hogs in a car during warm weather is a prolific source of mortality.

4. The feeding of corn, because of its heating effect, before and during shipment in hot weather, should be reduced to a minimum. Oats are preferable where a grain feed is necessary. The maximum maintenance requirement of hogs in transit for 24 hours is 1 pound of grain a hundredweight or approximately 3 bushels of corn to a car. In the past thousands of bushels of corn have been wasted in live-stock cars.

CHEAP WAY TO CONTROL WEEDS.

One of the best and cheapest ways to control weeds on farms is to keep a flock of sheep. In addition to controlling weeds without cost, sheep will render a profit by producing nutritious food and wool, and will assist materially in meeting demands on the Nation for meat and wool production. If weeds are not permitted to grow and develop leaves they will die, but it would require a great amount of hand labor to keep most weeds under control by this method. Sheep will keep the weeds down and the more weeds they eat the less will be their cost of upkeep, and the greater will be the supply of feed released for other stock. Many rough or permanent grass pastures that require mowing can be kept clean by the use of sheep, while at the same time the cattle-carrying capacity of the pasture is increased.

TO INVESTIGATE GADFLY DAMAGE

Prevalence of gadflies in the vicinity of Orlando, Miami, and West Palm Beach, Fla., is a serious obstacle to successful cattle raising in that territory, according to a Department of Agriculture entomological specialist who recently visited that State. An investigation of the damage done to live stock by gadflies in that region is contemplated.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Business Men Harvest Potatoes in Texas.

The potato crop of Houston and Wharton Counties, Tex., has been saved through the aid of the business men in local towns. When it was realized that the potato crop would be lost unless the farmers received help, the State extension director, cooperating with the farm-help specialist of the Department of Agriculture, explained the situation to the business men, who closed their offices and stores, went to the farms, and worked with the potato growers in harvesting their crop. Such cooperation is meaning much not only for the increasing of the food supply of the Nation, but is breaking down the barrier that in many cases has existed between town and country, according to the United States Department of Agriculture. Business men and farmers are working hand in hand to secure an adequate food supply and to further the Nation's great cause. Other communities are planning to follow the example set in these Texas counties.

Animal Tuberculosis Work Extended.

Sixty-four Federal employees and 54 State employees are engaged this year in fighting animal tuberculosis, that widely distributed disease which causes an annual loss estimated at $25,000,000. The Bureau of Animal Industry has recently extended operations for the control of this disease to 31 States. Headquarters have been established in 12 important centers from which the work will be supervised and directed.

Three Live-Stock Experts Join Department's Staff.

The Secretary of Agriculture announces the appointments of John T. Caine III, now director of agricultural extension at the Utah Agricultural College; De Witt C. Wing, associate editor of the Breeders' Gazette, Chicago, Ill.; and Dan T. Gray, professor of animal husbandry, North Carolina Agricultural and Mechanical College, as specialists in animal husbandry, for cooperative duties between the Bureau of Animal Industry and the States Relations Service. These men are expected to assume their duties immediately, and will devote their attention to questions of policy concerning animal-husbandry extension work in the United States Department of Agriculture. Mr. Caine and Mr. Wing will devote their attention to the northern and western territory, and Mr. Gray will confine his attention to the southern territory. In their travels in the field they will represent both the Animal Husbandry Division of the bureau and the Extension Office of the States Relations Service with which they are connected.

To Show Grain-Grading Methods.

In order that farmers and others interested in Federal grain standards will be able to know how the grading is done, the Bureau of Markets will take exhibits to many of the large State and other fairs in the Northwest this summer. A complete set of apparatus for grain grading will be displayed and demonstrations of the actual grading of grain will be made at these fairs by representatives of the Federal Grain Supervision Section of the bureau.

Seeking Outlet for Low-Grade Cotton.

The department has taken up with the War Industries Board the question of the utilization of the low grades of cotton, of which a large surplus is accumulating. This low-grade cotton is piling up because the ordinary outlets for it are closed by the war, and because cotton of higher grades is being used by manufacturers, particularly on Government contracts, when cotton of the lower grades might be used satisfactorily instead.

Boys Help South to Feed Itself.

Here is an incentive for boys' clubs in the South—a 1917 record to surpass in 1918. Food and feed valued at $4,019,121 was the total production of boy-club members in the South last year, according to a compilation recently made by leaders in the United States Department of Agriculture. The report shows that 115,745 were enrolled in the regular clubs in 14 States, Alabama not reporting. In addition to the regular members probably 400,000 boys, it is estimated, were reached and were helped in food and feed production through instructions given by agents in schools and clubs, farm demonstrations, and so on.

Investigations of Grades for Barley and Flax.

Investigations looking toward standard grades for barley are being undertaken by the grain-standardization project of the Bureau of Markets. Similar work on standards for flax seed is already under way.

Eradicating Sheep And Cattle Scabies.

By 1920 there will be no territory under quarantine for sheep and cattle scabies, it is believed by officials of the Bureau of Animal Industry. Effective April 15, the Secretary of Agriculture issued an order releasing from quarantine the last four counties in Texas, constituting the remainder of the area under quarantine for cattle scabies in the entire United States. There still remain under quarantine for sheep scabies 10 counties in California, 11 counties in Texas, and 3 parishes in Louisiana.

Grades for Sweet Potatoes.

After a study of the possibilities of grading sweet potatoes the Bureau of Markets has submitted tentative grades to a list of dealers, growers, and operators of sweet potato storage houses for their suggestions and criticism. Over 90 per cent of the replies are decidedly in favor of the grades. One of the letters of approval was from the Eastern Shore of Virginia Produce Exchange, which is composed of producers, and is one of the largest sweet-potato marketing organizations in the country.

Aiding in Aeronautical Work.

Suitable sites for additional aerological stations for the observation, measurement, and investigation of atmospheric phenomena in the aid of aeronautics have been selected by the Weather Bureau at Broken Arrow, Okla.; Ellendale, N. Dak.; Droesbeck, Tex.; Leesburg, Ga.; and Royal Center, Ind. This was done under the Army appropriation act for the year ending June 30, 1918, authorizing $100,000 for this purpose. Installation of equipment has been completed at the Ellendale station and daily free air observations are being obtained. It is expected that free air observations will be begun at the other four stations about July 1. The work to be conducted at all of these stations is similar to that at Drexel, Nebr., where daily kite flights are made, and about twice each month the atmospheric changes during the day at different altitudes are studied by means of successive flights continuing from 30 to 40 hours.

Reports on Manufactured Dairy Products.

Monthly reports on dairy products manufactured in the United States are being issued by the dairy marketing project of the Bureau of Markets, which include condensed, evaporated, and powdered milk, butter, cheese, other manufactured dairy products and oleomargarine. These reports, taken together with the reports of cold-storage holdings and exports, are of much service in making an analysis of the dairy-

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PIGEON RAISING ON FARMS CONTRIBUTES TO MEAT SUPPLY

These Quick Producers Can Be Reared as a Side Line at Little Cost

Two to Four Dozen Pairs Will Provide Ample Supply of Squab Meat for Average Family—Careful Mating and Selection of Stock Essential

Pigeons kept as a side line on farms contribute to the home supply of meat, thus releasing more pork and beef for soldiers and war workers. Though pigeon raising to be successful requires careful oversight and attention to details, much of the work connected with it can be done by boys and girls who as a rule take a great interest in the enterprise and enjoy caring for the birds. If good breeding stock is obtained, feed is available at reasonable prices, and if there is a convenient market the production of squabs can be made a profitable source of income. On many farms pigeons can be kept at very little expense, as they will get the greater part of their feed from scattered grain which would otherwise be wasted. Those interested in raising pigeons for squab production should send to the United States Department of Agriculture, Washington, D. C., for Farmers' Bulletin 684, "Squab Production," which will be sent free on request as long as the supply lasts.

Good Breeding Stock Essential.

Good breeding stock is one of the prime essentials of success in squab raising, says this bulletin. Many failures have been due to poor stock because the prospective producer obtained pigeons past their period of usefulness, or a surplus of male birds. There is a great difference in the value of pigeons as squab producers even of the same variety, making it advisable to select the birds individually for their prolificacy and vitality, for the quality and size of their squabs, and their ability properly to feed and rear offspring. Dark-colored skin, legs, or beak are an indication of dark-colored flesh, and

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SHEEP AND THE FARM LABOR PROBLEM.

The extra labor required to keep weeds under control is probably the greatest economic loss which they cause. Labor is too much needed for other lines of farm work and should not be used in fighting weeds if they can be eradicated in any other way. Yet weeds must be controlled if maximum crop yields are to be secured. In this respect sheep can aid in the farm labor problem. They will eat most weeds, and on any farm will greatly reduce the amount of hand laber needed to hold weeds in check in pastures and grain fields. Keep sheep and arrange your farm so they can help in the fight with weeds.

Honey Crop Could Be Increased 10 to 20 Times at Small Cost

About 250,000,000 pounds of honey are produced annually in the United States, California being the leading State in the production of this sweet. Honey production in this country could be increased largely—ten to twenty times the present yield—without an appreciable increase in the cost of production, for the raw material—the nectar in flowers—is at certain times practically unlimited. To produce more honey we just need more colonies of bees properly managed. The proposition is very simple to state, but decidedly difficult to execute. Successful beekeeping requires a high degree of skill, special training, and faithful, persistent attention to the business, so any marked increase in successful beekeeping hinges upon educational work among present and prospective beekeepers. Permanent courses in beekeeping are being introduced in agricultural colleges, and extension work in beekeeping is now being conducted in many States. The United States Department of Agriculture is conducting emergency extension work in selected regions, where a considerable increase in the honey crop may reasonably be expected in the immediate future.

Losses of bees by disease, principally foulbrood, range during the summer from nothing to 10 per cent. Winter losses of bees range from 10 to 15 per cent, and in some States the loss was almost 50 per cent during the winter of 1916-17. Winter losses may be greatly reduced by more careful attention. The honey production business, commercially, is getting more and more in the hands of specialists, because disease and winter losses discourage many who are untrained and unable to prevent these losses by proper treatment.

Honey became established some years ago as a seasonal product rather than a staple food for use throughout the year. The bulk of the honey was produced by farmers as a side line, the bees were given little attention and the honey was produced at little expense. The crop was marketed at low prices during the autumn, and stocks were usually exhausted during the winter. There was little demand and practically no supply during the spring and summer. But honey is now handled in a large way as a staple food product through the influence of commercial beekeeping, which has had a rapid development in recent years.

Honey is produced in three forms: Comb honey, in 1-pound sections as commonly retailed; extracted or liquid honey, which has been removed from the comb; bulk or "chunk" honey, in which the comb is more or less mixed with the liquid honey. From 1914 to 1917 the production of liquid honey has increased in proportion to the commercial output of comb and chunk honey. The bees are able to produce a larger quantity of honey if they are not compelled to build comb for it, and when the comb is emptied and replaced in the hive the bees are able, in periods of heavy nectar secretion, to proceed immediately to the storage of more honey.

The United States Department of Agriculture has issued Bulletin No. 685, "Honeybees and Honey Production in the United States," which will be found valuable by beekeepers and persons interested in beekeeping. Several other bulletins on beekeeping have been issued by the department and are available for distribution.

ADDITION OF FOREIGN MATTER TO COTTON SEED IS ADULTERATION

The United States Department of Agriculture is of the opinion that the return of foreign matter to cotton seed or the deliberate addition of foreign matter to cotton seed, constitutes adulteration, and that the shipment into interstate or foreign commerce of cotton seed so treated violates the provisions of section 7 of the Federal food and drugs act. This opinion is published in Service and Regulatory Announcement No. 22, Bureau of Chemistry.

It has been stated that it is a common practice among cottonseed ginners to remove the bulk of foreign matter (consisting of dirt, sand, stones, leaves, hulls, sticks, stems, bolls, etc.) contained in the unginned cotton from the lint and seed and subsequently add this foreign matter to the cotton seed before shipment. It has been stated further that in some cases cottonseed producers or merchants add extra dirt or sand, which was not obtained from the unginned cotton, to their cotton seed before shipment.

The British breeds of sheep amply demonstrate the possibility of obtaining large yields of wool and meat from the same animals, and with both commodities in strong demand the flocks of the future will develop still further upon a wool and mutton basis.

Don't treat lightly the boy who sells "hot roasted peanuts" at the ball park. Peanuts are "a splendid food, cheap and nutritious." The United States Department of Agriculture says so.

Use of 200-pound Bags for Fertilizers Will Effect Needed Saving in Burlap

Owing to the fact that the burlap situation has steadily grown worse, it is a question whether a sufficient supply can be obtained to meet the needs of the country. As the shortage would ultimately reflect on such uses as for fertilizers in view of priority need for food containers it is necessary that the use of burlap in shipping fertilizers should be curtailed to the smallest possible amount, says a statement recently issued by the United States Department of Agriculture.

Bags are not only scarce, but the jute from which burlap bags are made is imported from India and the shortage of ships has materially interfered with the supply, while the necessity of furnishing bags for the Army in trench warfare will further deplete the available supply.

The total amount of fertilizer consumed in the United States annually is about 6,000,000 tons, and of this at least half is being shipped in less than 200-pound bags. The amount of burlap and money that could be saved yearly by eliminating the use of the small bags is shown below:

One 200-pound bag of fertilizer takes a 54-inch bag, and ten 200-pound bags require 15 yards of burlap; one 167-pound bag of fertilizer takes a 50-inch bag, and twelve 167-pound bags require 16½ yards of burlap; one 125-pound bag of fertilizer takes a 42-inch bag, and sixteen 125-pound bags require 19½ yards of burlap; one 100-pound bag of fertilizer takes a 40-inch bag, and twenty 100-pound bags require 22 yards of burlap.

If the 3,000,000 tons of fertilizer now shipped in smaller bags were shipped in 200-pound bags, it would require 45,000,000 yards of burlap, at a cost of $9,000,000. If 167-pound bags were used, it would require 49,500,000 yards of burlap, at a cost of $9,900,000. If the 125-pound bags were used, it would require 58,500,000 yards of burlap, at a cost of $11,700,000. If 100-pound bags were used, it would require 66,000,000 yards of burlap, at a cost of $13,200,000. If the 200-pound bags were used instead of the 100-pound bags, it would mean a yearly saving of 21,000,000 yards of burlap and $4,200,000. If the 200-pound bags were used instead of the 125-pound bags, it would mean a yearly saving of 13,500,000 yards of burlap and $2,700,000. If 200-pound bags were used instead of 167-pound bags, it would mean a yearly saving of 4,500,000 yards of burlap and $900,000. By averaging the three smaller bags we find a saving of 13,000,000 yards of burlap and $2,500,000.

Therefore the saving by using 200-pound bags in preference to any of the smaller sizes is clearly shown not only by the scarcity of the material but by the amount saved in yards and money.

Another way in which burlap can be saved is by the use of second-hand bags of any size. There are a large number of these bags on the farms in the country, and efforts should be directed toward their utilization. The dealers in second-hand bags pay from 6 to 15 cents apiece, depending on the size and condition. Even if the bag can not be used to ship fertilizer, it can be ripped apart again and used for other purposes.

PIGEON RAISING ON FARMS CONTRIBUTES TO MEAT SUPPLY

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should be avoided by selecting birds for breeding which have white or pinkish-white skin and light-colored legs.

Pigeons are most valuable as squab producers when they are from one to six years of age, although many will breed until they are about eight years old. The small varieties mate or breed at five to six months, and the large ones at eight to nine months. It is advisable either to buy mated pigeons which are from one to three years old or to procure young birds six to eight weeks old and mate them at the proper age. Squabs which are to be saved for breeding should be banded with leg bands before they leave the nest and a record kept of their breeding. They should be removed to the breeding pen after they are able to fly about and get their own feed.

There are a great many varieties of pigeons, but only a few are bred extensively for squab purposes. Those most commonly kept are Exhibition or squab Homers, Carneaux, Maltese, Hungarians, and Runts. Runts are very large and do not breed as rapidly as the smaller varieties, but are oftentimes crossed with some of the smaller breeds to increase the size of the squabs. Carneaux have recently become very popular for squab purposes, as they are larger than the Homer and about as prolific and as good feeders. Common pigeons, though kept quite extensively on farms, are not profitable squab producers, as they produce smaller squabs that are frequently of poor quality, and are not as prolific as the other varieties mentioned.

Mating and Care Material Factors.

Pigeons usually mate in pairs and remain constant through life, although the mating may be changed if desired. The presence of unmated pigeons in the pigeon loft is a source of much trouble and usually prevents profitable results. Therefore it is very desirable that all birds in the breeding pens be mated. Pigeons should be kept in houses that are well ventilated and dry, where sunlight is easily accessible and where there is enough space to keep the pigeons comfortable. The interior fixings of the house should be as simple as possible and easy to clean. Two nest boxes should be provided for each pair of pigeons, and it is advisable to have a few extra nests. Roosts should be arranged in perpendicular rows in convenient places in the pen. If the pigeons are confined, a fly or outside yard covered with wire should be attached to the south side of the house, but on farms pigeons are usually given free range. All pens and yards should be kept clean, as there is little chance of making money from squabs unless the pigeons can be kept comparatively free from disease and insect parasites. If healthy breeding stock is procured, the houses and yards kept clean, and careful attention given to the birds, diseases and parasites should not be a material factor in squab raising.

Pigeon raising is an extremely elastic industry, capable of being quickly increased or diminished to meet demands. Squabs may be expected to weigh about a pound and be ready to eat when a month old. From 2 to 4 dozen pairs kept by persons having a natural inclination for handling feathered stock should provide an ample supply of this kind of meat for the average family.

The Belgian hare is one of the best rabbits for table use. It weighs more than most breeds, develops rapidly, and the quality of the meat is superior to all the others. The Flemish giant is a Belgian hare bred exclusively for large size, with the result that the meat is coarser and less delicate in flavor. These characteristics are considered by some persons as desirable, but this is largely a matter of individual taste.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended June 8, 1918:

- **Curing Hay on Trucks. Farmers' Bulletin 956.**
- **Sweet-potato Storage. Farmers' Bulletin 970.**
- **Prevent Grain-Dust Explosions and Fires. Unnumbered circular, Bureau of Chemistry.**
- **Proposed Regulations for the Protection of Migratory Birds. Service and Regulatory Announcement 20, Bureau of Biological Survey.**
- **Seed Supply of the Nation. Yearbook Separate 757.**
- **Women on the Farm. Address of Assistant Secretary Ousley.**

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Save Cowpea Seed From Ravages of Weevils by Planting More or Feeding

There is a large surplus supply of cowpea seed in the country which should be planted or fed promptly to save it from the ravages of weevils, according to the committee on seed stocks of the United States Department of Agriculture. The surplus is of varieties with colored seed which ordinarily are not used for human food, but which produce hay of excellent quality and seed which is a very desirable concentrated stock feed rich in protein. Beginning with warm weather in summer the damage to cowpea seed in storage by weevils is likely to be very large, so that it is highly desirable that plans be made to utilize the surplus supply promptly in additional plantings, and where there is an excess above this, for feeding, particularly to hogs. It is urgent, the department specialists say, that the South, especially, should further increase its acreage of cowpeas this year.

Cowpea Hay High in Feeding Value.

The cowpea hay, when properly cured, is of high feeding value, practically equal to that of alfalfa. The Southern States should grow as nearly as possible the entire supply of hay they will need. Heretofore the South has imported each year large quantities of hay from the North and West. Growing this hay in the South will relieve the railways of a tremendous traffic.

Cowpea seed, especially when ground, is a valuable stock feed. The experiments of the Alabama Experiment Station have clearly shown that cowpeas are practically equal to corn in feeding value for fattening pigs. However, a mixture of corn and cowpeas in equal parts is far more satisfactory than either fed alone. In similar experiments at the South Carolina Experiment Station, the results indicated that cowpeas alone gave better results for fattening pigs than corn alone. However, the proper method is to feed the two in mixture.

Cowpea meal has also been found a very satisfactory feed for mules, especially in a mixture composed of one-third cowpea meal and two-thirds corn-and-cob meal. Similar mixtures may be made with other grain feeds that are not rich in protein, as the cowpea seed is rich in this material.

SPECIALISTS STUDY WAR COOKERY IN NEWLY EQUIPPED KITCHENS

In the redirection of effort and extension of work that came with the war the Office of Home Economics of the United States Department of Agriculture has originated many new dishes designed to meet the war emergency food situation.

Experimental cookery in a newly equipped laboratory is an important feature of the war work, as is an extended volunteer dietary survey to which many housekeepers and others are contributing information of great value. In the survey the Bureau of Markets and the United States Food Administration cooperated, special attention being given to preparation of food and planning of meals in agreement with food conservation requirements.

Popular information relating to war-time food saving and food preparation has been spread through the press and printed documents. The first numbers of a new series of publications, the United States Food Leaflets, have appeared. These leaflets are designed for use in connection with Department of Agriculture extension work and in other ways. The leaflets are nontechincal in character and each is devoted to a single topic. In addition to these, the office has issued or has helped to issue new Farmers' Bulletins especially suited to the war-emergency situation.

All Growers and Dealers to Report in National Seed Survey

All dealers in seed whose stock at any time during the past year amounted to 500 pounds of vegetable seed or 5,000 pounds of field seed are required to report in the seed stocks survey to be made by the Bureau of Markets, United States Department of Agriculture, under date of July 1, 1918. In addition to the survey covering stocks held by dealers the department announces a vegetable seed-production survey in which everyone who grows vegetable seed for sale or purchases vegetable seed from local growers or seed farmers is expected to report on the forms sent out from Washington.

Schedules will be mailed to dealers and growers on June 15, but it is pointed out that any person who does not receive a schedule by June 25 should apply for one either to Washington or to local offices of the Bureau of Markets. The Secretary of Agriculture has set the time limit for the return of the schedules properly filled out for July 10, 1918.

The annual loss to the spring-grain growers of the Northwest due to dockage of the marketed grain because of weed seeds present amounts to from 3 to 10 per cent of the crop.

CORN IN SILO SAVES $37 AN ACRE ON A 50-BUSHEL CROP

That is Value of Stover Left in Field in Many Sections

Even If Stover Is Saved and Fed the Loss in Dry Matter is 25 to 45 Per Cent—Loss in Silo Very Slight

At least 37 per cent of the digestible material of the corn plant is left in the stover when the ears only are used. When corn is ensiled this 37 per cent goes into the silo with the 63 per cent in the ear. The importance of this saving will be more apparent when given a money value. With a yield of 50 bushels an acre the value of grain is $75, at $1.50 a bushel. Since the stover contains more than one-third of the food nutrients, it is worth at least one-half as much as the grain, or $37.50. How many farmers will willingly leave in the field $37.50 an acre? Yet this is done in many sections of the country where the corn is husked and the stover left in the field.

How Corn in Shock Loses.

But suppose the dry stover is fed as roughage. Even then it is not saved as completely as in silage. When, under ordinary farm conditions, corn is cured in the shock, the loss of dry matter is approximately 25 per cent and may be as high as 45 per cent. These losses are due to the breaking off fo leaves by the wind and in handling, and to destructive fermentations. The loss of dry matter in the silo is very slight when the silo is tight and the silage well packed at the time of filling. As silage, the cornstalk is all consumed, but as stover, unless it is shredded, only the leaves are eaten, and even then a great part of the stalk is discarded. Some feeding experiments show that even in shredded stover the portion discarded is as high as 31 per cent. This is in addition to the loss of dry matter during the curing process.

Make Silage of Immature Crop.

Too frequently an unfavorable season like that of last year results in the loss of the whole corn plant or in immature soft corn that is of little value. By far the best method to utilize corn which is immature at harvesting time is to put it into the silo. Even frosted corn will make satisfactory silage if harvested at once. If it becomes dry it may be saved by adding water during the filling process.

The making of as much silage as can be used will do much to conserve the feed supply. Have you planned to fill that silo?

CURING HAY ON TRUCKS NEW METHOD FOR RAINY WEATHER

Canvas-Covered, Two-Wheeled Rack Protects Hay and Moves It

Twenty Dollars Covers Cost of This Haymaking Implement—Specialists Tell How to Make It and How to Use It

A new method of curing hay economically and effectively, even under unfavorable weather conditions, is made possible by the use of hay trucks, which are simple, cheaply constructed labor-saving devices, similar to ordinary hayracks. A hay truck consists of a frame mounted on two low wheels. A number of them are placed about the field and are used to stack the partly cured hay on. The hay is thus protected from moisture in the ground, and a canvas cover prevents injury from rain. When the hay is to be hauled to the barn or baler no reloading is necessary, for the team can be hitched to the truck. These trucks, which can be used to advantage when protecting bound grain from the rain until it is ready to be thrashed and for hauling corn to the silo, etc., are described in Farmers' Bulletin 956, recently published by the United States Department of Agriculture. It is estimated that a truck and the necessary canvas (9 feet by 14 feet) costs about $20.

While hay trucks have been used successfully in many parts of the South, the bulletin states that they can be used to advantage in any locality where there is a large acreage of hay, especially alfalfa, and where haymaking is a more or less hazardous undertaking on account of the prevalence of rainy or cloudy weather. The additional cost in curing hay when the truck method is used is more than offset by the gain in efficiency, considering the average loss of hay cured by ordinary methods in rainy weather.

How the Truck Is Made.

A hay truck 12 feet long by 7 feet wide will hold about 1,500 to 2,000 pounds of cured hay. It consists of a rack which rests on an A-shaped frame. At the rear, the frame is supported by two 16 to 20 inch wheels placed about 4 feet from the end. The front is supported by a 6 by 8 inch wooden block of sufficient length to hold the truck level. This is known as the trigger and is fastened by a heavy bolt between the two main frame timbers near where they come together. Upright standards are placed at each end of the frame in an A-shaped position. At the top of each standard a notch is cut to receive a 2 by 4 inch ridgepole that supports the canvas covering and keeps it from lying flat on the hay, thus permitting the air to circulate freely at the top. The truck is moved by means of a 2-horse team and a 2-wheeled running gear, similar to the front running gears of a low-wheeled wagon. This gear is attached to the front end of the truck by means of a long clevis pin, and when the team starts the forward movement causes the trigger to trip and drag on the ground, the weight of the load being thus shifted to the running gears. Upon reaching the barn or baling machine the team is backed a step or two, which causes the trigger to assume an upright position and again support the front end of the load. The running gear can then be detached and taken to the field for another loaded truck.

How to Use the Truck.

Hay must be partly cured before it is placed on the truck, to avoid danger from heating and spoiling, says the bulletin. It is desirable to do the last third or fourth of the curing on a truck under a canvas cover, where it is protected from the sun and rain. When the yield of hay is light it is a good plan to mow it in the morning, rake it in the afternoon, and put it on the trucks in the evening or next morning after the dew is off. When the yield is above a ton per care the hay should be mowed in the morning, tedded the next morning, and raked in the windrows before noon, where it should be allowed to lie for about two hours before being put on the trucks. Hay may be taken directly from the windrows and loaded by hand, but this is not considered the best practice, because it requires too much time to pitch the hay and some of it is lost by being scattered. The best practice is to bunch the hay with a push rake and then load it upon the trucks, which have previously been distributed in convenient places about the field. In good curing weather hay is in condition to be baled after curing three days on the trucks. If the hay is a little green when put on the trucks, or the weather is unfavorable, it will take a week or possibly longer to cure out thoroughly. Hay may remain on the truck indefinitely if well protected by a canvas cover.

The use of the hay truck effects a considerable saving in labor over the common method of cocking and loading from the cock by hand. Indeed the hay-truck method requires even less labor than that of curing in the cock and hauling to press, stack, or barn with the push rake.

ON EVERY FARM—100 HENS.

There should be 100 hens on every farm in the United States, declares a recent publication from the office of the Secretary of Agriculture, Circular 107. And we should obtain 100 eggs from every hen. With approximately 6,000,000 farms, that would mean 600,000,000 hens and 60,000,000,000 eggs per year, according to the calculations of the writers, who then add that that number of eggs constitutes a military resource not to be ignored.

One hundred hens on every farm is not a particularly big contract. There is hardly a farm in the United States but could support that number of hens practically on its waste materials and without materially added cost. One hundred hens to a farm is considerably less than the average number of hens to a farm in many of the better poultry-producing sections of the country. It is an average that could easily be maintained in the sections of the country where the average per farm is now lower.

One hundred eggs from every hen, while far below what could be obtained with proper encouragement of fowls, is considerably more than the average egg production the country over. Suggestions for attaining this average are given in the publication mentioned.

DEPARTMENT TO INVESTIGATE COTTON FUTURES QUOTATIONS

The Secretary of Agriculture, through the cotton-futures section of the Bureau of Markets, will make a special investigation of cotton-futures quotations. For some weeks past there has been a disparity between the prices of middling cotton as quoted in spot markets and middling cotton as quoted by the New York and New Orleans future exchanges. This situation, it is pointed out impairs the usefulness of the future exchanges to manufacturers and dealers in hedging transactions in spot cotton and tends to render the market unsteady and uncertain. This question has had the attention of the Department of Agriculture for some time, and is also a matter of concern to those engaged in the cotton industry. The department states that the investigation of the situation will be complete and thorough, with a view to determining causes of the disparity and steps necessary for its remedy.

The department also has taken up with the War Industries Board the question of the utilization of cotton of the lower grades, of which a large surplus is accumulating. Low-grade cotton is piling up, because the ordinary outlets for it are closed by the war and the fact that cotton of higher grades is being used in the manufacture of goods, particularly on Government contracts, when cotton of the lower grades might be used satisfactorily instead.

Such weeds as wild onion, bitterweed, and the ragweeds cause great annoyance to dairymen and milk dealers. These weeds, when eaten by milch cows, give a very disagreeable odor and flavor to the milk, and consequently to all other dairy products. When cows eat such weeds in large quantities, the milk is not marketable. The control of pasture weeds is a big problem to dairymen in certain areas.

UNITED FORCES ARE SEEKING LABOR WITH FARM EXPERIENCE

Liberty Loan and Red Cross Campaigners Join in Hunt for Wheat Harvesters

Men of Sedentary Habits Can Be Made Fit to Perform Farm Labor by Special Athletic Training—What Women Can Do.

Organizations that so successfully conducted the third Liberty loan and second Red Cross campaigns are now working in cooperation with farm-help specialists of the United States Department of Agriculture in many cities to find workers with farm experience to help farmers harvest the wheat crop. Other organizations in cities, towns, and villages are also uniting their efforts to aid in this work. If the wheat is to be saved, and other needed farm work done, there must be closer cooperation between the town and country, according to the Department of Agriculture. Nonessential industries must permit their employees, who have had farm experience to go to the country and help during the harvest season.

Commercial organizations should secure pledges from men who are willing to devote a few days or weeks of their vacation in the harvest fields, and should see that these men are placed when and where they are most needed, suggest officials of the Department of Agriculture. City Young Men's Christian Association's athletic clubs, and country clubs should open their doors to these men and give them an opportunity to take physical exercise that will prepare them for labor in the fields. And women's organizations should volunteer to go to the country and help prepare meals for the army of harvest laborers, and in other ways lighten the tasks of their rural cousins.

Committee to Formulate Plans and Policies.

The plan which is to be followed is to bring about coordination of effort on the part of every agency engaged in securing farm labor. At a meeting held in Kansas City recently, which was the first of a series planned by the Department of Agriculture, a committee was appointed to formulate plans and policies for the organization of the various forces in the State so that the needs of the farmers may be met in an adequate way.

It is recognized that many men now in offices, stores, and banks and engaged in other city work would in their present condition be unable to go into the fields and withstand severe labor. It was therefore proposed and arrangements were made at the Kansas City conference for all such men who register for farm work to take a special course in training under the direction of the Kansas City Athletic Club. Here is an opportunity for similar clubs, Young Men's Christian Associations, and country clubs of other cities to render definite service in connection with the farm labor problem, say department officials.

Meals for the Harvest Hosts.

When this army of harvest laborers is taken from the cities to the harvest fields a large additional force will be needed in the farm homes to prepare meals for them. It is estimated that in Kansas alone 80,000 men will be taken to the harvest fields. With this in mind it was recommended at the Kansas City conference that a campaign be waged to enlist women of the villages, towns, and cities to go to the country and assist the farm women in their work as men are assisting the farmers. It was felt by all that it would be possible to secure the services of many thousands of women to assist in this big work. In many instances there are school boys, unable to pitch wheat, who could be used to peel potatoes, carry water, wash dishes, and help in other ways, and it was planned to enlist a large number of such boys to assist in this work.

CUT WEEDS BEFORE SEEDS MATURE

Many weeds are propagated only by seeds. Weed seeds are produced in large numbers along roadsides, fence rows, and ditch banks, in vacant fields, and in waste places, and the seeds are scattered by wind, water, birds, and other agents. By cutting the weeds before the seeds are sufficiently mature to germinate, an enormous amount of trouble and labor and loss could be avoided; but only the most progressive farmers do this.

"AT 'EM, BOYS; EAT 'EM UP."

Speaking of potatoes, not ball players. It may not pass the examination for dignity, but this hoarse suggestion of the bleacher fan quite accurately carries the thought which the Department of Agriculture and the Food Administration are trying to impress upon Americans in the "Eat-potatoes" campaign. It's a serious obligation.

Millions of bushels of potatoes should be eaten within the next few weeks. If we eat them, we save wheat and potatoes both. And if we save wheat, the boys in France who are holding that line can "carry on" under the same rallying cry—"At 'em, boys; eat 'em up."

Nine Club Sandwiches That Can Be Made of Cottage Cheese

Make them of three good size slices of toasted bread, one or more being spread thickly with cottage cheese. Lettuce or water cress and salad dressing are also used. The rest of the filling may be varied to suit the taste or the larder. The sandwich is cut diagonally across and served on an individual plate with the halves arranged in diamond shape. It is desirable to toast the bread on one side only and to cut it immediately after toasting, as otherwise the pressure of cutting crushes out the cheese and spoils the appearance of the sandwich. The cut slices may be placed together again while the sandwich is being filled, and the filling may be sliced through with a sharp knife.

In addition to the cottage cheese, these club sandwiches may contain: 1. Tomato, lettuce, mayonnaise dressing. 2. Thin slice cold ham, spread with mustard, lettuce, mayonnaise. 3. Sliced tart apple, nuts, lettuce, mayonnaise. 4. Sliced orange, water cress, mayonnaise. 5. Sliced Spanish onion, pimiento, lettuce, mayonnaise. 6. Two tiny strips of bacon, lettuce, mayonnaise. 7. Cucumber or green pepper, pimiento, lettuce, mayonnaise. 8. Sweet sandwiches may be made with layers of cottage cheese and marmalade, or a paste made of dried fruits. For these the bread need not be toasted, and the lettuce and mayonnaise should not be used.

Use as the main dish of a light luncheon or supper.

Suggested menu: Cream soup, cottage-cheese club sandwich, tea or coffee, dessert.

PULPWOOD CONSUMPTION AND WOOD PULP PRODUCTION IN 1917

The total pulp wood consumption in the United States during 1917 is estimated by the Forest Service, on the basis of reports made by the pulp mills, at 5,536,802 cords, an increase of approximately 6 per cent over the 1916 figures. Not all the mills have yet made their returns, but the figures of the preliminary estimate are not expected to be materially changed when the final compilations are completed. In 1917 domestic spruce formed 45.8 per cent of the total, as against 45.9 per cent in 1916; imported spruce formed 11.5 per cent in 1917 and 13.4 per cent in 1916.

Wood pulp production in 1917 is estimated at 3,464,511 tons, as compared with 3,271,310 tons in 1916. The 1917 production included 1,498,704 tons of mechanical pulp, 1,468,396 tons of sulphite pulp, 421,671 tons of soda pulp, and 75,740 tons of sulphate pulp.

Texas Cotton Growers Cooperate in Extermination of Pink Bollworm

The pink bollworm, that unwelcome invader which crossed the Mexican border a few years ago and made its appearance in the cotton fields of lower Texas, may be destined to have its visit in the United States cut short. Cotton growers in the infested districts of Texas are cooperating with the Federal and State authorities in every effort to exterminate it. They have completed the destruction and cleaning-up of the 1917 cotton crop in and surrounding the known infested areas. A total of 8,794 acres of cotton land have been cleaned of standing and scattered cotton, at an average cost of $9.94 per acre. The cotton fields cleaned represent 657 owners, or tenants, or an average of about 13⅓ acres to each grower.

In addition to the clean-up of these cotton fields, all the gins in the section, some 20 in number, have been subjected to a thorough cleaning and all remaining and scattered seed has been destroyed. A substantially successful effort on the part of cotton-gin operators has resulted in collecting and milling, under supervision, all cotton seed grown in the infested districts and the lint cotton has been shipped to foreign countries via Galveston.

Infested Districts Quarantined.

Under the recently enacted Texas law, proclamations have been issued by the governor of Texas quarantining the known infected districts—namely, the Hearne district and the large district surrounding Trinity Bay and including Beaumont. Within these areas the growing of cotton is designated a public menace and is prohibited "for a term of three years or so long as such condition of menace to the cotton industry shall be deemed to exist." A border free cotton zone, where cotton growing is also prohibited for three years, has been established by a proclamation of the governor to include the counties of Kinney, Maverick, and Valverde, as a rosult of the infestation of cotton lands in Mexico within 25 miles of the border.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

(Continued from page 8.)

products situation in the United States, such as is essential to an understanding of existing conditions and to the direction of efforts in production and conservation.

City Workers to Prepare for Heavy Work of Harvest.

Many thousands of boys and men who have enrolled for emergency work on farms during the rush of harvest will be trained for the service in courses offered by Y. M. C. A. organizations and athletic clubs in response to a request of the United States Department of Agriculture.

Better Balanced Farming in South.

Here is good news from the agricultural front in southern Alabama. Four years ago not a carload of hogs was shipped from 17 counties in that section of the State. In the year ending April 1, 1918, 2,352 carloads of hogs were shipped from these 17 counties. This change, illustrating the better balanced agriculture made necessary by boll-weevil ravages, is accredited by officials of the States Relations Service to the efforts of the county agents of the department and the State agricultural colleges in demonstrating hog production to farmers and showing them how to ship hogs cooperatively.

Women Establish Milk Stations.

Several milk stations have been established in northern cities by urban home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges. The purpose of these is to encourage a wider use of milk among the poor. In some places whole milk is handled and in others skim milk only is sold. All of it is bottled except that served in glasses over the counter to children. Community kitchens are being run in connection with the stations in some cities. This makes it possible to serve wholesome lunches at a very nominal charge. Many women patronize these stations and receive instructions in the making of milk dishes.

To Discourage Saturday Holiday in South.

"Enroll for farm work on Saturday" is the slogan of a campaign now being carried on in some of the Southern States by farm-help specialists of the United States Department of Agriculture in cooperation with the State agricultural colleges. The time-honored custom for the Southern negro to spend Saturday in town is being discouraged during this emergency when every man is needed every day for farm work. The request to do away with Saturday holidays is meeting with a hearty response, and many thousands of negro workers are answering the Government's call for increased food production.

Demonstration Kitchens Spring Up.

Home-demonstration work in newly organized counties is developing rapidly in all sections of the South. Although an agent has been established only six months in San Lucie County, Fla., 7 public demonstration kitchens have been built and equipped and 19 steam-pressure canners have been purchased in the county. More than 500 women and girls already have enrolled in county club work and many times that number are being reached in general demonstrations.

Food Conservation in Employment Offices.

Cooks, waitresses, and housekeepers are receiving instruction in food conservation in many of the employment offices in Boston, Mass. This unique scheme has been worked out by home-demonstration agents of the United States Department of Agriculture and the State agricultural college. Many women sit all day in these offices waiting to secure employment and are glad to give their attention to demonstrations and talks. Recipes are also distributed. This offers a means of getting the latest food information to a class of women who might not be reached in any other way.

War-Time Needs for Black Walnut.

Col. Henry S. Graves, chief of the Forest Service, has written to the Boy Scouts setting forth the need for the census of black-walnut trees which President Wilson has asked the Scouts to undertake. Four or five propellers are required for each airplane, the chief forester points out, and since black walnut is scarce and only the best grade can be used for this purpose, it is important that the Government should know immediately the location of all available supplies. Walnut is also the chief wood used for gunstocks, and these two requirements, Col. Graves says, make it one of the most essential timbers for war purposes.

Shows Where Harvest Labor is Needed.

Beginning with the June 5 issue the National Weather and Crop Bulletin, published by the Weather Bureau, will contain a series of charts showing where the harvesting of various crops has been commenced, and where they will be ready for harvest one or two weeks in advance. Re-

POTATOES THE GOOD OLD WAYS.

Mash them.

Peel hot boiled potatoes. Mash them well. Add salt, butter, and hot milk. Beat until very light. Serve at once.

What makes them good: Work quickly to keep them hot. Use plenty of milk. The more they are beaten, the better they get.

Write the United States Department of Agriculture for new potato recipes.

ports on the ripening of crops are made to the section directors of the Weather Bureau in each State, and are telegraphed by them to the central office Tuesday forenoons. The published information is forwarded promptly to the Office of Farm Management, and is used in anticipating labor needs in different parts of the country. In a normal season ripening, and consequently the harvesting of winter wheat, moves northward over the Great Plains region at an average rate of 20 miles a day. This rate may be decreased by cool, cloudy weather, or hastened by hot, sunshiny conditions. The National Weather and Crop Bulletin shows the rainfall, temperature, and sunshine prevailing during the week preceding and the effect of these conditions upon general vegetation.

Boys Volunteer for Farm Work.

It is estimated that 3,000 Chicago boys will volunteer to do farm work this season. Those who have offered their services have been given a course of training. The campaign to register and place this labor has been carried on by a farm-help specialist of the United States Department of Agriculture cooperating with the labor committee of the State Council of Defense.

Department Women Contribute to Red Cross War Relief

A uniform corps of the Woman's Volunteer Aid of the American Red Cross has been organized recently within the War Relief Association of the Department of Agriculture. Forty-four companies of 23 members each comprise this corps. The association, with Mrs. David F. Houston as its president, is officered by women of the department and is supported by generous monthly and semimonthly contributions from both men and women employees of the department.

Since its organization in December, 1917, the War Relief Association, with approximately 1,000 active workers, has produced 23,022 surgical dressings, 1,712 garments for ill and wounded soldiers, 622 for Belgian and French children, and about 5,000 knitted garments, many of which have been sent to department men who have entered military service. Many books and scrap books have been sent to near-by camps and hospitals, and other entertainment, such as dances, has been provided for the soldiers near Washington. One hundred war orphans are supported by department employees, and, through their efforts, 40 others are maintained by persons outside the ranks of the department. The association operates two work rooms for surgical dressings and a third room for the distribution of wool and materials for hospital garments.

This Homemade Refrigerator, Easily Made, Will Keep Food Without Ice

Where ice is not obtainable an iceless refrigerator, homemade, will be a useful food keeper and food saver this summer. Maintaining a low temperature through the evaporation of water from its canvas cover, the iceless refrigerator will keep meats, fruits, and vegetables cool and will extend the period for keeping milk and butter. It can also serve as a cooler for drinking water. This is the way to make it:

A wooden frame is made with dimensions 42 by 16 by 14 inches and covered with screen wire, preferably the rustless type, which costs little more than the ordinary kind. The door is made to fit closely, and is mounted on brass hinges, and can be fastened with a wooden latch. The bottom is fitted solid, but the top should be covered with screen wire. Adjustable shelves can be made of solid wood or strips, or sheets of galvanized metal. Shelves made of poultry netting on light wooden frames are probably the most desirable. These shelves rest on side braces placed at desired intervals. A bread baking pan, 14 by 16 inches, is placed on the top and the frame rests in a 17 by 18 inch pan.

Paint Makes Surface Attractive—Prevents Rust.

All the woodwork, the shelves, and the pans should receive two coats of white paint and one or two coats of white enamel. This makes a very attractive surface and one that can be easily kept clean. The screen wire also may receive the coats of enamel, which will prevent it from rusting.

A cover of canton flannel, burlap, or duck is made to fit the frame. Put the smooth side out if canton flannel is used. It will require about 3 yards of material. This cover is buttoned around the top of the frame and down the side on which the door is not hinged, using buggy hooks and eyes or large headed tacks and eyelets worked in the material. On the front side arrange the hooks on the top of the door instead of on the frame and also fasten the cover down the latch side of the door, allowing a wide hem of the material to overlap the place where the door closes. The door can then be opened without unbuttoning the cover. The bottom of the cover should extend down into the lower pan. Four double strips, which taper to 8 or 10 inches in width, are sewed to the upper part of the cover. These strips form wicks that dip over into the upper pan.

The dimensions given make a refrigerator of very convenient size for household use and one with efficient evaporating surface, but it is not necessary to follow strictly these dimensions. If a larger capacity is desired, the height of the refrigerator can be increased.

In homes where large quantities of milk and butter are to be kept it would be well to have one refrigerator for milk and butter and another for other foods, as milk and butter readily absorb odors from other foods. It costs very little to build the refrigerator and nothing to operate it. The operation is as simple as the construction. The upper pan should be kept filled with water. The water is drawn by capillary attraction through the wicks and saturates the cover. As evaporation takes place, heat is taken from the inside of the refrigerator, thereby lowering the temperature of the inside and the contents. Capillary action starts more readily if the cover is first dampened by dipping it in water or throwing water upon it. The greater the rate of evaporation the lower the temperature which can be secured; therefore the refrigerator works best when rapid evaporation takes place.

When the refrigerator is placed in a shady place in a strong breeze and the air is warm and dry, evaporation takes place continuously and rapidly and the temperature inside the refrigerator is reduced. Under ideal conditions the temperature has been known to be reduced to 50° F. When it is damp and the air is full of moisture, the refrigerator will not work as well, since there is not enough evaporation. More water will find its way to the lower pan, but it will be drawn up into the covering by capillary attraction when the air again becomes drier.

The refrigerator should be regularly cleaned and sunned. If the framework, shelves, and pans are white enameled they can be more easily kept in a sanitary condition. It is well to have two covers, so that a fresh one can be used each week and the soiled one washed and sunned.

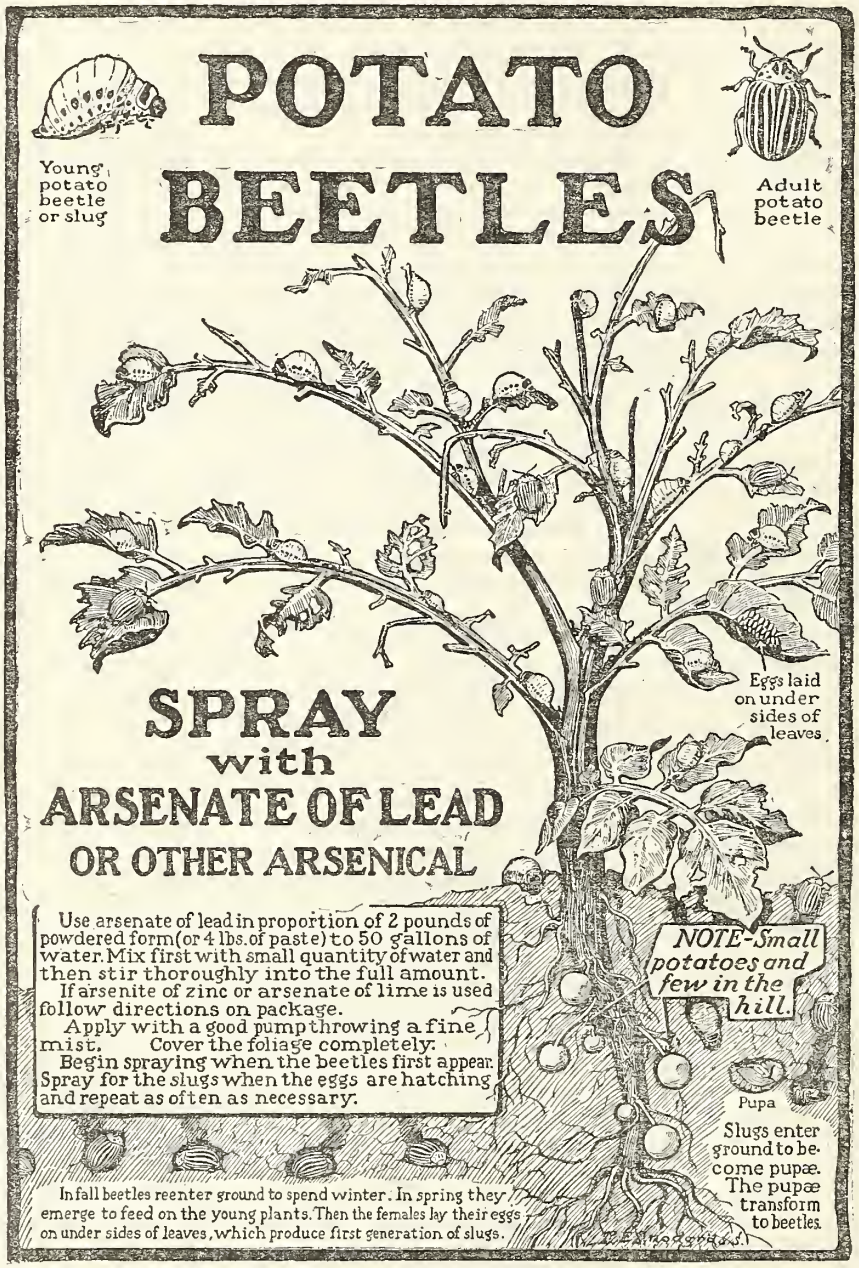
Great Britain has 384 sheep to each 100 cattle, while the United States has 73, and the 14 Northeastern States have 59 sheep to 100 cattle.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces that on July 2, 1918, an open competitive examination will be held for artist draftsman (male and female) to fill two vacancies in the Division of Publications, Department of Agriculture, Washington, D. C. Entrance salary ranges from $1,200 to $1,400. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Spray to Control Potato Pests.

INSECTS and diseases which annually cause serious damage to the potato crop are easily controlled by the free use of arsenical sprays. As a spray for the potato beetle and similar pests, arsenate of lead serves the same purpose as Paris green, is much cheaper, and also has the following advantages over it: (1) It contains less soluble arsenic; (2) it is less harmful to young growing plants, and when applied properly does not scorch them; (3) it adheres more strongly to the foliage; and (4) it is of greater value than other arsenicals (except zinc arsenite) in that it leaves a white coating on the foliage, so that its presence can be determined readily after spraying.



The spraying material will adhere better to the plants if the same weight of soap as of the arsenical is used in the mixture. Either rosin, fish-oil, or laundry soap may be used, preferably the former. Two or three sprayings ordinarily will be sufficient for the spring or over-wintered beetles if applied before the eggs for the first brood are hatched, and about the same number for the second brood or generation. In the South one or two sprayings for the third generation, when it appears, also should be given.

A COMBINED spraying of arsenate of lead and Bordeaux mixture is recommended as being effective not only for the control of the potato beetle but also for other insects and the diseases which attack the potato. Watch the young plants closely and spray with Bordeaux mixture and arsenate of lead as soon as the first evidence of the Colorado potato beetle or of flea-beetles is noted. Repeat this application every 10 to 14 days, to keep all of the new foliage protected. If no insects are present and the weather is dry, the intervals between sprayings may be lengthened. As the late-blight season approaches, which in the North usually is after the middle of July, a protective spraying should be given and the weather watched more closely, for if continuous showers occur, with a mean temperature of 72° to 74° F., spraying every 5 to 7 days will be necessary. A system for reporting the appearance and progress of late blight should be organized in order that potato growers may be warned when to increase their efforts.

Write to the United States Department of Agriculture, Washington, D. C., for Farmers' Bulletin 868, "How to Increase the Potato Crop by Spraying."

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. V JUNE 26, 1918 No. 47

Secretary Houston, in Address, Reviews Agriculture in the War

Declares Before Iowa Bankers Achievements of American Farmers Noble and Remarkable

Indications Now Are That They Will Do Even Better This Year, Secretary Says—Calls Upon Cities for Harvest Help—Discusses War Issues

At Dubuque, Iowa, on June 20, in an address to the State convention of bankers, Hon. David F. Houston, Secretary of Agriculture, reviewed the achievements of the farmers of the United States during the preceding year and indicated the achievements of the current year. Due to the leadership and inspiration of the Department of Agriculture and its allies—the land-grant colleges, the State departments of agriculture, and the agricultural press—the farmers planted 23,000,000 acres more of the leading food crops than in 1916, and made largely increased yields of all except wheat, which suffered on account of unprecedented winter kill. At the same time they increased the number of horses, milch cows, and other cattle, sheep, and hogs. The indications at this time are that the farmers will do even better this year.

The Secretary called upon business men "to familiarize themselves with the agencies serving to aid the farmers and to promote wise plans to secure the necessary results," with special reference to the mobilization of men of farm experience in the towns and cities for harvest, and to the financing and marketing of the crops. He declared that the farmers and the agencies assisting them were prepared when we entered the war, and had been for years, but that they are not spectacular performers. "They do not furnish sensations and headlines," he said, "they have no fixed labor day. They work in season and out of season—from early morning to dusk; but they do not work in the limelight."

Describing the operations of the Department of Agriculture, he said:

"It is stimulating production. It is increasingly controlling plant and animal diseases, reducing losses from the cattle tick, hog cholera, predatory animals, and cereal pests. In cooperation with the Department of Labor, it is rendering assistance to the farmers in securing labor. It has safeguarded seed stocks and secured and distributed good seeds to farmers for cash at the lowest possible cost; aided in transporting stock from drought-stricken regions; greatly assisted in the marketing of farm products; and, under enormous difficulties, has helped the farmers to secure a larger supply of fertilizers. It has also placed under license and control the ammonia industry, the fertilizer industry, the farm-machinery manufacturers and distributors, and is now developing plans for the regulation of the stock yards."

Text of Secretary Houston's Address Before Iowa Bankers

A Secretary of Agriculture can scarcely escape the conclusion that it is his duty once in a while to make a pilgrimage to Iowa. Iowa may not be absolutely the first State agriculturally in the Union. I might venture to make such an assertion here. It might not be safe for me to do so in Texas or even in Illinois; but I think I might be rash enough to assert anywhere that Iowa in proportion to her area and population stands first in agriculture among the commonwealths of the Union.

Achievements of Farmers Remarkable.

I am glad of this opportunity to express the Nation's appreciation of the patriotism

> **"There must be another Fourth of July for all the world, and we are now in the midst of making it good. But I verily believe that when we this time set the world free from Germany its independence will not again be seriously menaced; for Germany is its last great foe."**

(*Continued on page 3.*)

FARM TRACTORS GAINING IN POPULARITY IN THE CORN BELT

Ninety Per Cent of More Than 600 Users Regard Them Profitable

Ability to Do Heavy Work Quickly, Saving of Man Power, and Deep Plowing Cited as Principal Advantages in Use of Tractor

Evidence of the growing popularity of tractors on corn-belt farms is shown by reports made by more than 600 tractor owners, nine out of every ten reporting that their investment in a tractor had proved profitable. These data were obtained in the summer and fall of 1917 and in the spring of 1918 on representative Illinois farms by specialists of the United States Department of Agriculture in order to determine just what conditions justified the purchase of a tractor in that section. Experienced tractor owners who made reports stated that tractors will prove profitable on most corn-belt farms of 180 acres or more, while in their opinion they should not be expected to do so on farms of much less than 130 acres. The report of the investigators, published as Farmers' Bulletin 963, states that while the figures were obtained in only one State, they are applicable throughout the corn belt and that the prospective tractor purchaser may reasonably count upon equaling the average performances reported in the study.

The Tractor's Principal Advantages.

Nearly three-fourths (71 per cent) of those who reported owned tractors capable of pulling three plows. Eleven per cent recommended two-plow machines, while 13 per cent advocated the use of four plows. In answer to the question "What do you find to be the principal advantages of a tractor for farm work?" the answers indicated that its ability to do heavy work and do it quickly, thus covering the desired acreage within the proper season, was considered the principal advantage. The saving of man power and the doing away with hired help, enabling a man to farm a larger acreage and

(*Continued on page 9.*)

President Places Stockyards and Stock Dealers Under License System

Federal Permits Required After July 25, According to Proclamation of June 19

Action Follows Recommendations of Meat Policies Committee—Regulatory Powers, under the Secretary of Agriculture, Delegated to Bureau of Markets

A Federal license by every commercial stockyard in the country which is to continue in business after July 25, 1918, and by all commission merchants and dealers in live stock in connection with stockyards is required by a proclamation issued June 19 by the President. The licensing proclamation is one of a series issued by the President under authority of the food-control act of last August, bringing the dealing in necessities under the control of the Federal Government.

Recommended by Meat Committee.

The issuing of the latest proclamation follows the recommendations of a committee on the live-stock and meat situation of the country, appointed by the President, consisting of the Secretary of Agriculture, the Secretary of Labor, the Food Administrator, the chairman of the Federal Trade Commission, and the chairman of the Tariff Commission.

The proclamation places the duty of exercising the regulatory powers in the hands of the Secretary of Agriculture. These powers have been delegated by the Secretary to the Bureau of Markets, of which Charles J. Brand is chief.

Because of the licensing machinery, developed by the Food Administration in connection with the licensing of concerns engaged in handling foods, and other establishments, the licenses will be handled through this organization.

Rules and regulations for licensees are being formulated by the Bureau of Markets and will be promulgated within the next few weeks. Suggestions will be received from stockmen, stockyard operators, representatives of live-stock organizations, and other interested parties.

Proclamation Fixes Penalties.

The President's proclamation fixes penalties for all individuals and concerns operating stockyards, or dealing in live stock in connection with them, who fail to secure licenses by July 25.

The recommendation of the committee on meat policies, which the President adopts and puts into effect, is as follows:

"The stockyards should be placed under license and regulation by the Department of Agriculture, which should also establish a governmental system of animal grading under suitable regulations and methods of price reporting of actual transactions. Daily reports should be made on distribution and destinations of live stock, meats, and other products from principal packing points."

The President's Proclamation Licensing the Stockyards

WHEREAS under and by virtue of an act of Congress entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," approved by the President on the 10th day of August, 1917, it is provided among other things as follows:

"That by reason of the existence of a state of war, it is essential to the national security and defense, for the successful prosecution of the war, and for the support and maintenance of the Army and Navy, to assure an adequate supply and equitable distribution, and to facilitate the movement of foods, feeds, fuel, including fuel oil and natural gas, and fertilizer and fertilizer ingredients, tools, utensils, implements, machinery, and equipment required for the actual production of foods, feeds, and fuel, hereafter in this act called necessaries; to prevent, locally or generally, scarcity, monopolization, hoarding, injurious speculation, manipulations, and private controls, affecting such supply, distribution, and movement; and to establish and maintain governmental control of such necessaries during the war. For such purposes the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred, and prescribed. The President is authorized to make such regulations and to issue such orders as are essential effectively to carry out the provisions of this act."

AND WHEREAS it is further provided in in said act as follows:

"That, from time to time, whenever the President shall find it essential to license the importation, manufacture, storage, mining, or distribution of any necessaries in order to carry into effect any of the purposes of this act, and shall publicly so announce, no person shall, after a date fixed in the announcement, engage in or carry on any such business specified in the announcement of importation, manufacture, storage, mining, or distribution of any necessaries as set forth in such announcement, unless he shall secure and hold a license issued pursuant to this section. The President is authorized to issue such licenses and to prescribe regulations for the issuance of licenses and requirements for systems of accounts and auditing of accounts to be kept by licensees, submission of reports by them, with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the places of business of licensees."

AND WHEREAS it is essential in order to carry into effect the purposes of said act, and in order to secure an adequate supply and equitable distribution, and to facilitate the movement of certain necessaries hereafter in this proclamation specified, that the license powers conferred upon the President by said act be at this time exercised to the extent hereinafter set forth.

Now, therefore, I, Woodrow Wilson, President of the United States of America, by virtue of the powers conferred on me by said act of Congress, hereby find and determine and by this proclamation do announce that it is essential, in order to carry into effect the purposes of said act, to license the importation, storage, and distribution of certain necessaries, to the extent hereinafter specified.

All individuals, partnerships, associations, and corporations engaged in the business of conducting or operating, for compensation or profit, places, establishments, or facilities, commonly known as stockyards, consisting of pens or other enclosures, and their appurtenances, in which live cattle, sheep, swine, or goats are received, held, or kept for sale, feeding, watering, or shipment, and all individuals, partnerships, associations, and corporations, commonly known as commission men, order buyers, traders, speculators, and scalpers, engaged in the business of handling or dealing in live cattle, sheep, swine, or goats, in or in connection with such stockyards (excepted as exempted by said act of Congress), are hereby required to secure licenses on or before July 25, 1918, which will be issued under such rules and regulations governing the conduct of the business as may be prescribed under said act.

The Secretary of Agriculture shall carry into effect the provisions of said act, and shall supervise and direct the exercise of the powers and authority thereby given to the President, as far as the same apply to the said business, and to any and all practices, procedure, and regulations applicable thereto, authorized or required under the provisions of said act, and in this behalf he shall do and perform such acts and things as may be authorized or required of him from time to time by direction of the President and under such rules and regulations as may be prescribed by the President from time to time. All departments and agencies of the Government are hereby directed to cooperate with the Secretary of Agriculture in the performance of the duties hereinbefore set forth.

Applications for licenses must be made to the Law Department, License Division, United States Food Administration, Washington, D. C., upon forms prepared for that purpose.

Any individual, partnership, association, or corporation, other than as hereinbefore excepted, who shall engage in or carry on any business described herein, without first securing the license required therefor, will be liable to the penalties prescribed by said act of Congress.

In witness whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done in the District of Columbia, this 18th day of June, in the year of our Lord one thousand nine hundred and eighteen, and of the independence of the United States of America, the one hundred and forty-second.

[SEAL.] WOODROW WILSON.

By the President:

ROBERT LANSING,
Secretary of State.

"The efforts and achievements of the millions of farm men and women have been noble and remarkable. The farmers have occupied the first-line trenches of the food army. They and the agencies assisting them, the Federal department, the State colleges, and departments of agriculture, were prepared when we entered the war and had been for years, and I venture the assertion that no section of our people and no agencies have done a better job."

SECRETARY HOUSTON REVIEWS AGRICULTURE IN THE WAR

(*Continued from page 1.*)

and efficiency of the farmers of Iowa and of the whole country. The efforts and achievements of the millions of farm men and women have been noble and remarkable. The farmers have occupied the first-line trenches of the food army. They and the agencies assisting them, the Federal Department, the State colleges, and departments of agriculture, were prepared when we entered the war and had been for years, and I venture the assertion that no section of our people and no agencies have done a better job. They were charged with the responsibility for maintaining and increasing food production. How they have discharged their tasks the results of last year's production operations and of this year eloquently testify. But farmers are not spectacular performers—they never are. They do not furnish sensations and headlines. They have no fixed labor day. They work in season and out of season—from early morning till dusk; but they do not work in the limelight. They are not in the view of people living in cities, the centers of intense publicity.

Urban dwellers ordinarily devote very little thought to rural districts and to sources of food supply. Heretofore they have not had to think much about food. If it is abundant, as it usually is, they take it for granted. If it becomes scarce, they develop hysteria and an amazing capacity for making suggestions. Within the last year city people have manifested an intense interest in food, and, not knowing their Government, some of them have developed the highly interesting proposal that some Government agency should be created to give attention to production. They have seen windows placarded and papers filled with pleas for conservation, for investments in Liberty bonds, and for subscriptions to the Red Cross. They have wondered why they have not seen similar evidence of activity in the field of production. They do not know of the thousands of men and women quietly working in every rural community of the Nation and the millions of bulletins and circulars dealing with the problems from hundreds of angles. They forget that the field of work lies outside the city. They do not recognize that both the problem and the method are different.

It is one thing to ask a man to save. It is one thing to ask a man to invest in Liberty bonds. These things tremendously aid the Nation; but they are also a certain benefit to the individual. It is another thing to ask a man to put his labor and capital into the production of food, facing the hazard of the weather, of distribution, and of the market. Advice to him to do so is one thing; assistance to him to lessen his hazard is another; and such assistance is furnished so quietly that

"But farmers are not spectacular performers—they never are. They do not furnish sensations and headlines. They have no fixed labor day. They work in season and out of season—from early morning till dusk—but they do not work in the limelight. They are not in the view of people living in cities, the centers of intense publicity."

a great part of the Nation knows nothing of it and innocently assumes that nothing is done.

When we entered the great war the Nation had a high state of preparedness in its agricultural organizations, whose foundations were laid in another great crisis, resting on two laws signed by Abraham Lincoln, the one creating the Department of Agriculture, the other the land-grant colleges. It is not extravagant to say that this Nation had agencies working for the betterment of rural life and agriculture, which in point of personnel and effectiveness exceeded those of any other three nations in the world combined. It had more. It had legislation bearing on agriculture, much of which had been recently passed, which is without a parallel abroad. I refer especially to the Federal reserve act, with its provisions to facilitate the handling of agricultural paper; the Smith-Lever demonstration act, the cotton futures, the grain standards, the warehouse, the farm-loan, and the Federal-aid road acts.

Agriculture Ready for War.

In April, 1917, the food situation of the Nation was not satisfactory. The time for action was short. It was necessary that nothing be omitted to increase the supply of food, feed, live stock, and clothing, and to grow strong in agriculture, while Europe, and especially the central powers, were growing weak. The machinery was ready. The farmers and their organizations were alert. The department and its great allies, the land-grant colleges, immediately proceeded to redirect their activities and to put forth all their energies in the most promising directions. In a conference of the agricultural leaders of the Nation in St. Louis, called just before we entered the war, a program for further organization, legislation, and action with reference to production, conservation, and marketing was drawn up, the principal features of which have been enacted into law without substantial change or have been put into effect. In due course the Congress enacted the food control bill, conceived at this conference, now administered by the Food Administration, and the emergency food production act, administered by the Department of Agriculture. With funds made available by the latter act, the department increased its activities along all essential lines and developed new ones. It, and the State colleges cooperating with it, quickly took steps to expand the extension work, with a view to place in each rural county one or more agents. To-day there are employed in this great system nearly 6,000 county and home demonstration agents, club leaders, and specialists in various lines. These agents have not only actively campaigned for increased production along economic lines and carried to the farmer the

"It is one thing to ask a man to save. It is one thing to ask a man to invest in Liberty Bonds. These things tremendously aid the Nation; but they are also a certain benefit to the individual. It is another thing to ask a man to put his labor and capital into the production of food, facing the hazard of the weather, of distribution, and of the market."

latest and best scientific and practical information, but they have also been of tremendous assistance to other branches of the Government, such as the Treasury Department in its Liberty loan campaigns, the

Food Administration in its conservation efforts, and the Red Cross in its war activities.

It would require a volume to indicate the thousands of things which the department,

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in cooperation with its allies, is doing. It is stimulating production. It is increasingly controlling plant and animal diseases, reducing losses from the cattle tick, hog cholera, predatory animals, and cereal pests. In cooperation with the Department of Labor, it is rendering assistance to the farmers in securing labor. It has safeguarded seed stocks and secured and distributed good seeds to farmers for cash at the lowest possible cost; aided in transporting stock from drought-stricken regions; greatly assisted in the marketing of farm products; and, under enormous difficulties, has helped the farmers to secure a larger supply of fertilizers. It has also placed under license and control the ammonia industry, the fertilizer industry, the farm-machinery manufacturers and distributors, and is now developing plans for the regulation of the stock yards.

Sought Advice of Producers.

The department and the Food Administration have throughout recognized the natural interest of producers in the agricultural policies of the Government. They have omitted no opportunity to consult producers. They have held many sectional conferences. They have formed a National Farmers' Advisory Committee, consisting of able representatives from all the sections of the Union. The chairman of the executive committee, who is also chairman of the national committee, will reside in Washington to be in touch with the department and the Food Administration and to serve also in the machinery of the War Industries Board. In this way he, and through him the members of the committee and the producers of the Union, will have a very direct opportunity to see the problems, to take part in discussions of measures under contemplation, and to assist in arriving at wise conclusions.

The results of last year's agricultural operations speak for themselves. That the farmers are primarily responsible for them and deserve the credit goes without saying; but it would be unfair not to recognize the great assistance rendered by the Federal and State departments and colleges and the tremendous part they have played in bringing about better food conditions for this Nation and for the allies. In spite of difficulties, real and imaginary, the farmers of the Nation, with the assistance of these agencies, extended their operations, planted 23,000,000 acres more of the leading food crops than in 1916, a larger acreage than ever before planted in the history of the Nation, and produced record crops of most products except wheat. The partial failure of this crop was in no wise due to lack of interest or activity on the part of the farmers. They planted a large acreage, but had the misfortune to lose by winter killing the largest percentage of it ever recorded, as they also had the misfortune to have the largest percentage of soft corn in our history. These things were done notwithstanding the insistent representations—or rather misrepresentations—made in Washington and elsewhere that they could not be done.

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Even more striking is the fact that they greatly increased the number of all classes of live stock. In spite of exportations of horses and mules, they increased the number by 454,000. They increased the number of milch cows by 390,000, and of other cattle by nearly 2,000,000; the number of sheep for the first time in a generation and a half by 1,300,000; and of swine by nearly 4,000,000.

Crop Prospects.

The indications to date are that they will do even better this year. Last fall they planted the record winter wheat acreage; this spring the record spring wheat acreage. The weather conditions have been increasingly favorable and the indications are that we shall have more than 930,000,000 bushels of wheat. This, on the basis of a normal and extravagant consumption, would allow 600,000,000 bushels for domestic use and an exportable surplus of 330,000,000 bushels. But this is not all. The indications are that the rye production will exceed that of the record year by 21,000,000, more than double the output in peace times; that the production of barley will be increased by 26,000,000; and that oats will approximately equal the record crop of 1917, exceeding the five-year average by over 300,000,000 bushels. The condition of the cotton crop exceeds the 10-year average, as does also that of all hay and pastures. It is too early to speak of the corn crop, but the informal indications are that the acreage will be large, and we have reason to believe the quality of the corn will be by no means as low as last year.

Ground for Optimism.

These statements furnish ground for optimism and for confidence among our people and our allies that we shall not suffer from lack of food and that we shall not fail to win the war because of its shortage. They should be reassuring to consumers and a matter of encouragement to farmers that they can again overcome difficulties. I need not point out to bankers the large bearing of this enormous production on the foundations and machinery of finance and credit. In normal times, the annual contribution of the farms to the financial strength of the Nation has run as high as thirteen and a half billion dollars. On the basis of prices existing in 1917, the output was estimated to be worth twenty-one billions of dollars, a sum equal to the total appropriations and authorizations made by the war session of Congress. On the same basis, it is highly likely that this year's value will be even greater. It is exceedingly important that these things be seen in the right light. While they represent an enormous increase in value, they do not imply a proportionate increase in volume of commodities. And it would be highly unfortunate if any one were to regard the promise for the future as any warrant whatever for relaxation of efforts both for greater production and for fuller conservation. There will be continuing need for large supplies of food, clothing and feed products, not only for our own population

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but also for the allies; and there is every reasonable indication that the conditions will result in fair prices to the farmers, whether war continues or peace comes. For even if peace should come, stricken Europe will for a time look to this country not only

for large supplies, but will especially seek here large numbers of live stock with which to replenish their depleted herds.

These statements mean another thing. They mean difficulties of harvesting. They imply the need of large numbers of laborers. The Nation must see to it that the labor and capital invested in planting and cultivation shall not be impaired or wasted from lack of

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labor for harvesting. There is a duty in this direction resting upon the town and city, resting upon you and all other business men. You represent for the most part communities which are made by the back country—which would not exist but for agricultural support. It is both a matter of patriotism and business for you to omit no effort to help in the matter of labor supply. I have stated before, and I say again, that the next great factor to enlist for the betterment of agriculture and rural life in this Nation is the business man of the town and the city. He has not always been alive to his obligations. He has contented himself, in too many instances, with plans to secure profit in agricultural trade instead of sympathetically and eagerly planning constructive assistance. This duty, pressing in peace time, is of the most urgent and impelling character in this crisis; and I appeal to the bankers and business men of Iowa so see that they omit no effort to familiarize themselves with the agencies serving to aid the farmers and to promote wise plans to secure the necessary results.

Appreciation of Iowa's Efforts.

I am sure that the bankers of Iowa have not been negligent in this matter. I am aware of the enormous assistance they have rendered in other directions, and I simply reflect the sentiments of the Federal authorities when I express to you their appreciation of the service you have rendered in behalf of conservation, of the Liberty loans, and of the Red Cross. I am advised that the State of Iowa, with a quota of $71,000,000 for the third Liberty loan, subscribed a total of $117,160,000, representing 661,000 subscribers in a population of 2,250,000. I am informed further that, while the oversubscription in the second Red Cross campaign for all the States was 68 per cent, that for the State of Iowa was 86 per cent, and that it exceeded its first quota of $1,000,000 by $778,000. And yet I can recall that, at a time not very far remote, there were those in the East who urged the necessity of sending missionaries to the West to teach it patriotism.

Obviously, we must labor unceasingly to produce and to save, and each individual must recognize the pressing obligation resting upon him. There is no other way by which the enormous financial burdens of this war can be met. It is a simple fact that the burden of waging this war must be borne by this Nation as it proceeds. This is a simple truth, but it is not an obvious one. Centuries of unsound traditions and many delusions obscure it. There is a singular misapprehension that, by resorting to loans, the burden of waging war can, to that extent, be shifted to future generations. If this were true, there would be no definable limit to the extent and variety of war the present generation could wage. The commodities needed for waging war must be had and paid for at the time.

The iron, the steel, the coal, the clothing, the shoes, the lumber, the ammunition, the guns, and the ships secured by the Government are used and destroyed at the time, and, for the most part, can not later be enjoyed. At the end of the war the Nation will have paid for them. Borrowing shifts

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nothing but a credit obligation and entails a burden of restitution and readjustment. A credit relation is set up and an obligation on the part of all is incurred to pay back with interest the wealth the Nation has borrowed, with all the resulting difficulties and irritations. If it be true that the burden of war is actually borne at the time, then it follows that the capacity of a nation to wage war is measured by its ability to maintain production and especially to save, to abstain from consumption of anything that can be avoided, especially of luxuries, and to stop waste.

Two Arguments for Loans.

As I see it, if loans were made exclusively from savings, except for the subsequent difficulties of reimbursement it would be relatively unimportant whether the control of wealth were secured through loans or taxes. But these are large provisos. Loans are not always provided from savings and we can not escape the necessity for subsequent adjustment. As I see it, there are only two really plausible arguments for resorting mainly to loans—one a psychological argument that the people will not appreciate the necessity for the war and be impatient or resentful of sacrifices imposed by taxes; the other a physical one, that it is difficult in time to devise an equitable tax measure, to administer it effectively, and to secure revenue promptly. But, obviously, this argument has diminishing force as war proceeds. Taxes have the obvious advantage over loans that they more directly enforce economy and obviate the necessity of readjustment. Taxation, therefore, especially on consumption, more particularly on luxuries, and also on excessive profits, not only tends to saving, to check investment in nonessential directions, but also to keep down the general level of prices and to lessen the financial obligations of the Nation.

People Willing to Pay.

I am convinced that the people of the Nation are willing to pay the necessary taxes and that the financiers of the Nation recognize the necessity of sound finance. We have been fortunate to date. In the field of finance, as in the field of agriculture, we entered the war in a state of preparedness. Who among you can estimate at its real value the Federal reserve law and the creation of its machinery in advance of the breaking out of this world conflict? The Nation's financial arrangement had never previously been able to withstand strain either in peace or war; but now, after four years of world financial strain and more than a year of special national strain such as no financier dreamed it possible for the world to bear, through the wise handling of the machinery of the system and the patriotic cooperation of the bankers, our finances are still sound and we are proceeding in orderly fashion. No greater contribution to the winning of this war has been or will be made than through the enactment of the Federal reserve act in 1913 and the successful establishment of the system well in advance of trouble.

That we have the physical resources to win this war I entertain no doubt. That we have them in larger measure than any other

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nation in the world is a matter of common knowledge. We have not fully realized the enormous power of the country. If, in the sixties, when we were a simple, crude, undeveloped Nation, doing things in a small way, with the question yet undetermined whether we were to be one nation or two, we could wage the mightiest war up to that time and issue from it with unrivaled power, what can

we not do to-day, with a united people and with immeasurable greater resources, if our spirit is right and our purpose is steadfast. There can be no slacking on the part of anybody. If the free, democratic, law-abiding nations, like Great Britain, France, Italy, and Belgium, are destroyed, if Prussian militarism is permitted to dominate, then the Anglo-Saxon fight for free institutions and liberty, persisting from Runnymede to Yorktown, its fight against the absolute right of kings and barons, with its Magna Charta, its Bill of Rights, its Declaration of Independence, and the heroic fight of the French, of the Italians, of the Belgians, and of other free peoples for liberty will have been made in vain.

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There is and can be only one thought uppermost in our minds to-day, and that is to win this war. The conflict is a test of the spirit of nations even more than of their material resources and strength. In the words of the Archbishop of York, "Force will fail unless there is moral conviction behind the Nation," and every individual proclaims, "Here I stand; I can do not other. So help me God."

Measure of Nation's Strength.

I shall not offend your intelligence by entering into a detailed exposition of the issues confronting us. Still we can not too often concentrate attention upon them; for it is true, as someone has said, that the last word on the theory of war is that the strength of the nation in battle is measured by the hold which causes and purposes of the war have on the minds and the hearts of the people.

You know the story of the violation of our rights, the sinking of merchant ships, the murder of innocent men, women and children, the spying and intrigue in our midst, the destruction of our ships, the broken pledges, and the assault on all humanity and civilization. You know how long and patiently the President labored to keep this Nation at peace and to preserve its neutrality. You do not need to be reminded of the bitter criticism to which he was subjected at home and abroad. Such patience and forebearance have never been exhibited by the head of any great State. You know that he yielded only when failure to act would have meant the sacrifice of every principle which the American people hold sacred and for which they have always been willing to fight, and would have involved the submission of this great Nation to the dictation of an arrogant power.

We fight a nation which knows no law, except its own law of necessity made in Prussia, exclusively interpreted by her, and to be changed by her at will. It was this law of necessity that Germany invoked when she established her illegal war zone and began her career of murder on the high seas. Because England possessed a mighty fleet and was using it in conventional ways to prevent supplies from reaching her foe, Germany adopted her nefarious submarine policy and arrogantly based it on her law of necessity.

Things "Necessary" to Germany.

It was necessary for Germany to get at France. France did not desire war. She was in her most pacific mood and unprepared, but when Germany challenged her to know whether she would keep her faith with Russia or not France replied that a treaty with her was a sacred thing and that she would keep her word and preserve her honor. To get at France Germany decided that it was "necessary" that she should go through Belgium. She brutally informed Belgium that, if she was hospitable, she would recompense her and guarantee her possessions, but if she resisted she would regard her as an enemy. Little Belgium replied that she was a nation and not a military highway.

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Great Britain had asked both France and Germany what their intentions were with reference to Belgium. France replied that she had pledged her faith and that, of course, she would keep her word. Germany temporized. Finally the British ambassador at Berlin was instructed to secure a definite answer by midnight. On the 4th of August he saw the minister for foreign affairs, who stated that German troops that morning had entered Belgium; that they had to advance by the quickest and easiest way, so that they could get ahead of their enemy and strike a decisive blow. The southern line had too many roads and too many strong fortresses. Rapidity of action was the great German asset. It was "necessary" for her to go through Belgium. It was a matter of life and death. To get at great France, she must destroy little Belgium and murder her women and children.

The English ambassador remarked that this was very serious and he would see the chancellor. The chancellor was excited, and harangued the ambassador for 20 minutes, saying that England's action was terrible to a degree. Just for a word, "neutrality," just for a scrap of paper, Great Britain was going to make war on a kindred nation. He held Great Britain responsible for all the terrible events that might happen.

Nothing in history is finer than the reply of the British ambassador. "If for strategical reasons it was a matter of life and death for Germany to advance through Belgium, violate her solemn pledge, and the latter's neutrality, so it was a matter of life and death for the honor of Great Britain that she should keep her solemn engagements." "But at what a price," exclaimed the chancellor. "The fear of consequences," the Englishman replied, "could scarcely be regarded as an excuse for breaking solemn engagements." The German chancellor, in his speech before the Reichstag the same day admitted that this was contrary to the dictates of international law, but asserted that "it was necessary" to ride over the legitimate interests of the Governments of Luxemburg and Belgium.

We are fighting a power which has an insane desire for domination and knows only one royal road to expansion and domination, the way of might. Germany entertains the stupid notion that it is necessary for her happiness and prosperity to dominate the peoples of the earth by military conquest. From the earliest time the guiding principle of Prussia's politics has been to stand ready at all times with overwhelming force to secure increased territory by violence and intrigue. Her first great application of this principle was made in 1740. Before the death of his overlord, the Emperor of Austria, the Great Frederick, so called, solemnly pledged himself to observe the right of succession of Maria Theresa and to confirm her in her possessions. On the death of the Emperor, in 1740, Frederick promptly gave Maria Theresa assurance of support, having in his mind at the very moment to commit a crime against her. Suddenly moving his army against her Province of Silesia, after eight years of desperate warfare, he appropriated it.

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Prussia's Next Robbery.

Prussia's next considerable piece of robbery was in 1864. She induced Austria to join her in taking from Denmark Schleswig and Holstein. She then turned upon Aus-

tria, seized her part of the booty and, in addition, annexed four of her considerable possessions. The Prussian Parliament still had some conscience left, and protested that force was not a sufficient justification for what had been done to Denmark. Bismarck replied: "Our right is the right of the German nation to exist, to breathe, and to unite." His law was the law of necessity. Her last successful "Bandit stunt" was the appropriation of Alsace-Lorraine; and now she is engaged on a much more ambitious undertaking. Is it any wonder that her writers hold that the lessons of history confirm the view that wars which have been deliberately provoked by far-seeing statesmen have had the happiest results? Is it surprising that the German Emperor asserts that the sword is his best protection, that a great army is the cornerstone of his well-being, and that war is a positive good? Prussia believes that war pays. It is her induction from her history. The world must teach her that it will no longer pay and that her career as a bandit is ended. It is now engaged in this difficult business.

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We fight a power with an archaic, out of date, mediaeval state of mind. Its people placidly accept the doctrine that their rulers reign by divine right, that God is a German god, not that they are on his side, but that he is on their side, and that the German people are God's chosen people. Note this utterance of an ordained German minister, quoted by Secretary Lansing: "It may sound proud, my friends, but we are conscious that it is also in all humbleness that we say it; the German soul is God's soul; it shall and will rule over mankind." Or this, the recent address of the Kaiser to his troops: "Remember that the German people are the chosen of God. On me, the German Emperor, the Spirit of God has descended. I am His sword, His weapon, and His vicegerent. Woe to the disobedient and death to cowards and unbelievers." What blasphemy. The Spirit of God descending on the spirit of the man who decorates naval commanders responsible for the drowning of hundreds of women and children. The Spirit of God descending on the spirit of the man whose military commanders sanction the mutilation of children and the rape of women in Belgium, France, Serbia, and Poland.

Here we still see mediievalism, stupidly strutting before the offended eyes of men and of God. And so it is that, in its final analysis, the great issue is that between medievalism and modernism, between the Prussian rule of necessity and might and the rule of right, between the arbitrary rule of whim and the serene rule of law. We people of the modern world had thought that we had made an end to such things and freed ourselves from them forever; that England had given the finishing touch to the rule of divine right and of whim when she cut off the head of the Stuart; and that France had done the same when, two centuries later, she acted in similar drastic fashion. But we had been blind to the realities of central Europe and had failed to take note of the fact that modern means of transportation and electricity had made the western world of our day much smaller than the Thirteen Colonies were more than a hundred years ago when they proclaimed their independence.

German Orders to America.

It was from this feudal minded, vain, insolent, and arrogant power, from the military overlords of Prussia, that the orders came in February, 1917, to us, to 100,000,000 of the freest people in the world. These orders were the final expression of Prussian whim. "Keep your people at home" they commanded. "Tie up all your ships except one. Stripe it as I dictate; let it sail on the day I fix; send it to the port I designate. Tell your manufacturers to keep their products in their warehouses. Let your surplus foodstuffs go to waste. Tell your farmers to keep their millions of bales of cotton, their grain, and their meat at home till I order otherwise. Set aside international law and accept my law of necessity till I crush the great modern free states of Europe. Stand by till I finish with them and then maybe I will attend to you. Although our spies are operating among your people, in Mexico, Japan, and elsewhere, even while you give hospitality to our ambassador, and although our agents are destroying your plants and our submarines are killing your citizens, stand aside. These are my orders."

> **"For my part, I would rather see this Nation gloriously fail fighting for freedom with great England, heroic France, Italy, and Belgium and to see it pass from the pages of history than to see it survive in the greatest ease and luxury submissive in any respect to the dictation of Germany."**

What would we do about it? What answer would we make? What answer was there except one? Life is precious; but not at the sacrifice of everything that makes it worth while. National peace is desirable; but not at the cost of everything that makes a nation worth saving. No man worthy of the name of American citizen in such a situation could fail to exclaim with Patrick Henry, "Is life so dear or peace so sweet as to be purchased at the price of chains and slavery? Forbid it, Almighty God. I know not what course others may take, but as for me, give me liberty or give me death."

What would Washington have said? And Jefferson, and Samuel Adams, and Andrew Jackson? What Lincoln, and Davis? Grant and Lee? Sherman and Stonewall Jackson? What Albert Sidney Johnston, Stuart, Sheridan, Meade, Thomas, Wheeler, Hancock, and hosts of others who died that the Nation might live? What did you say then? What do you say now? For my part, I would rather see this Nation gloriously fail fighting for freedom with great England, heroic France, Italy, and Belgium, and to see it pass from the pages of history than to see it survive in the greatest ease and luxury submissive in any respect to the dictation of Germany.

We have discovered that there is truth in Jefferson's assertion that the tree of liberty is a tender plant and that, as it grows from more to more, it has to be watered by the blood of patriots. We have discovered that independence in this world is not a thing which can for all time be secured by what is done at a given place on a particular day. We have learned that the process of civilizing the world and of subjecting the disorderly to the rule of law is a slow one. There must be another Fourth of July for all the world, and we are now in the midst of making it good. But I verily believe that, when we this time set the world free from Germany its independence will not again be seriously menaced, for Germany is its last great foe.

The Way to Victory.

We are now engaged in this task. Will we complete it? Can we stand the test? One thing is clear. The way through this grim business is the only way out. There can be no turning back, no faltering, no hesitation. This war will not be won by a miracle or by enchantment. The quickest way to win it, the cheapest way, if you please, is to put into the struggle every ounce of our will, intelligence, and power as quickly as possible where it will be most effective. It will not

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be won by soap-box orators or professional pacifists. If such people could win a war against the Germans, the Russians would have been in Berlin long ago.

It will not be won by irresponsible critics. It will not be won by misrepresentations based on ignorance or partisanship, or inspired by the mischievous. There are many of these among us. It will not be possible to Bolshevikize the people of this Nation, but there are many who are valiantly engaged in the attempt. It is the duty of good citizens to keep their heads, to demand of such critics their evidence, and to place the burden of proof not upon conscientious public servants of all shades of opinion who are serving the Nation, but upon these ignorant and mischievous persons who greatly hamper public business and are endangering the lives of thousands of your boys.

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This war will not be won by those people of confused minds who profess to see nothing in our life and institutions different from what they find in medieval countries of Europe. They deceive themselves by phrases, and have never caught the meaning of the American spirit and institutions. No greater duty rests upon the leaders of thought than that of bringing home to all the people of the Nation the real meaning of our institutions and life. They must be taught that ours is a Government of law and of majorities; that every good cause has its day in court; but that, if they can not convert a majority to their way of thinking, they will not be permitted to achieve their ends by violence.

Those Who Spread Class Consciousness.

This war will not be won by those who spread the doctrine of class consciousness, promote the theory of class struggle, and who really mean to secure the dominance of their class. Their plans will not prevail. The Nation has not been working in vain for centuries to destroy class rule, to develop a common consciousness and a government by all the people. Government by classes and class interest is passing from the earth. It is the German plan, and it is the antithesis of democracy, as President Butler observed. The American people will have none of it.

We have undertaken the biggest task of our lives. Our work is cut out for us. We must see it through to a successful end. We must let nothing divert us. But, as order and organization increasingly develop, as our mighty energies are overwhelmingly directed against the foe, we must give thought to the binding up of the "Nation's wounds" and to the tasks of reconstruction. This the Government has begun to do. We must, in advance, for example, plan the demobilization of our forces, the conservation and disposition of Government property, the redirection of industry, the adjustment of land and water transportation, the safeguarding of labor standards, and the rearrangement of our finances. There will be many difficulties and dangers. There will be thousands of people burdening themselves with the tasks. This is one of the advantages of democracy. It is also one of its difficulties. There will be many futile proposals, some of them very selfish.

What is needed is a clear analysis of the situation, a keen sense of direction, and a large patriotic view. It will be an aid if our people will realize that the problems can not be dealt with largely in terms of European experience and will bear in mind American conditions, which, in great measure, will be different and peculiar. There are those who, in view of some existing tendencies and practices, predict a permanent radical change in our institutions and habits—the disappearance of individualism and the wholesale substitution of state socialism, or even communism.

Mark Twain's Maxim.

There are always people who violate Mark Twain's best maxim: "Never get more out of an experience than there is in it." I wish every citizen would frame it. Mark Twain illustrates the maxim, saying: "A cat that has sat on a hot stove lid, will never sit on a hot stove lid again; but the trouble with the cat is that, thereafter, it will not even sit on a cold stove lid." There are many people like the cat. Doubtless many good things will come out of this situation. There will be large, permanent useful deposits. But human nature can not be entirely revolutionized. Civilization grows slowly "from more to more." The process is, as Tennyson expresses it, "by slow prudence, to make mild a rugged people, and through soft degrees subdue them to the useful and the good." There have been other great crises in the world's history. In Cromwells' time, the English people reached a high degree of regulation and thought they had fixed their institutions in somewhat perfect democratic molds. But the reaction came. The principal thing which remained was the overthrow of divine rights and arbitrary rule and the firm beginnings of responsible government. So also, France, in 1790, thought she had reached a degree of democratic perfection which, in fact, she has only approximated after more than a century.

> **"This old world is not going backward. It is not going the way of the Kaiser. It is going the way of Clemenceau, Lloyd George, and Woodrow Wilson."**

In the struggle now before us, we aim at nothing selfish. We are bent on demonstrating that militarism does not pay; and that nations can not longer seek to dominate the world by force. We are embarked on the enterprise of teaching the lesson that it is not necessary to a nation's welfare and happiness that it seek to acquire such domination by might and that the only really worthy national ambition is to have a clean national household from cellar to attic. We are determined to teach the lesson that law must rule among nations as among individuals and to establish guaranties for future peace and the prevention of a recurrence of such a calamity as this.

World Not Going Backward.

We shall not fail. We are aligned with the free forces of the world and have back of us the conscience of civilization. I agree with the Archbishop of York that, in the ultimate analysis, there must be some power that can change the hearts of the German people which alone can make them fit associates for free and self-governing peoples. This German plan of world empire will collapse as have other similar plans. It is not the first time that it has been tried. The Persians tried it and were halted at Marathon and Salamis. Alexander attempted it and did not even get back home. Rome sought it and was finally overwhelmed by barbarians. Napoleon played for the same stake and ended his days at St. Helena. The Kaiser in his time will learn his lesson. This old world is not going backward. It is not going the way of the Kaiser. It is going the way of Clemenceau, Lloyd George, and Woodrow Wilson.

Agricultural clubs and other farm organizations could undertake perhaps no more important cooperative work than that of controlling weeds. The advantages of community action for the control of weeds can not be too strongly emphasized.

MAKING FOOD FROM WASTE.

Keep this thought in mind in considering the growing of more poultry as a war necessity: Poultry is a means of converting into good food materials that can not be utilized by man, that can not be eaten by any other kinds of stock, and that without the poultry would be absolute waste. Very clearly it becomes a national as well as an individual duty to keep enough poultry to take up all such waste materials. As long as fowls take the bulk of their feed from such sources and require to be fed on grain or other garnered feeds only as a finishing process, additional food is being created.

How Farmers Led in Oversubscribing Liberty Loan Shown in Final Report

The Treasury Department authorizes the following:

Next to the aggregate number of subscribers, perhaps the most striking feature of the third Liberty loan was the support given it by the farming and rural populations of the country. Not only did the farmers purchase liberally of the bonds, but the rural communities as a rule were more prompt in completing their quotas of the loan than the larger cities. More than 20,000 communities in the United States subscribed or oversubscribed their quotas, many of them on the first day of the campaign. The majority of these were not cities, but country districts.

Farming States Subscribed Quotas First.

Iowa, a typical agricultural State, was the first to subscribe its quota, and was followed by Oregon, Arkansas, Kentucky, and other States in which agriculture is the leading industry.

It is impossible to give accurate figures, but it is estimated that while only 2 per cent of the farming population of the United States subscribed to the first and second loans, probably ten times as many subscribed to the third. The significance is increased by the facts that the heavy subscription was made at a season when the farmers are ordinarily on the borrowing and not on the lending and investing side of the market and when the farms of the country are speeded up to the limit.

Sense of Duty Permeates Whole People.

This wide distribution of the third loan among the whole people shows that the body of the Nation has become aroused and gone into action—that the sense of duty and the necessity for individual support of the country has permeated the whole people. Secretary McAdoo may justly be enthused over the result and call it the soundest national financing in the world. Every Liberty bond holder is an active force backing the Government.

Our soldiers in France and our allies are heartened and strengthened by the knowledge that 17,000,000 American citizens are backing them with their money, and our enemies must learn with fear and dread of this great reserve force upon which their adversaries can rely.

Victory Through Scientific Saving.

To keep the good work up, the American people must adopt scientific saving methods; save money, save material, save labor, and save time. Thus we will bring the war to an earlier and victorious close and save the lives of American soldiers, and save our rights and our liberties, and save the world to democracy, justice, and civilization.

FARM TRACTORS GAINING IN POPULARITY IN THE CORN BELT

(*Continued from page 1.*)

thus increase the crops he can raise, was next in importance. The ability to plow to a good depth, especially in hot weather, was also emphasized.

Under disadvantages the difficulty of efficient operation was the principal point, and this fact should be kept in mind by everyone who considers the purchase of a tractor, says the bulletin. In this connection it suggests that tractor owners take a course of training under competent instructors in this line, as the results of such a course usually amply justify the time and expense involved. Packing of the ground when damp was mentioned by several owners as a disadvantage, but not as frequently as was the case when more of the older and heavier machines were in use. The expense, delays, and inability to use the tractor for many kinds of work for which horses could be used were disadvantages mentioned by several owners.

Increased Acreage and Better Quality of Work.

Approximately one-third of all the Illinois farmers reporting increased the acreage they were farming after purchasing a machine. It is obviously impossible to determine definitely the probable life of the latest model tractors, since none of them is worn out, but the average time as stated in the report was from 7½ to 8 years. The life of a tractor will depend upon the amount of work done each year—that is, the number of days or hours it is used. Reports show that tractors were used on the average of 45 days per year. The area covered per day (10 net working hours) in plowing with the tractors was 6½, 8¾, and 10 acres for the two, three, and four plow outfits, respectively. The average depth of plowing was slightly less than 7 inches, while the average depth on the same farms with horses was about 5½ inches. About 50 per cent of the tractor owners reported that the quality of work done by tractors is better than that done by horses, while less than 3 per cent said it is poorer. Thirty-six per cent of the owners reported that no time was lost in the field on account of trouble with their outfits, while those who reported trouble stated that the average time lost was a little over three-quarters of an hour per day. On about three-fourths of the farms the tractor displaced about three horses, which represented one-half of the cost of the tractor outfit.

CITIES MUST HELP FARMERS.

In any American city it may come to pass that men who know how to chop wood or pick cotton or harvest wheat will have to close their offices and stores during the periods of seasonal strain and come out and help the farmers. All the other countries at war have done that and we must do it if the need appears.—Clarence Ousley, Assistant Secretary of Agriculture.

ORDER FALL FERTILIZERS EARLY, ADVICE OF DEPARTMENT OFFICIALS

Farmers are urged by the United States Department of Agriculture to place orders at once for fertilizer needed for fall wheat. It is very important, according to W. W. Mein, Assistant to the Secretary of Agriculture in charge of the licensing of fertilizer concerns under the food control act, that dealers and manufacturers know farmers' needs as soon as possible, so that orders can be combined and car space used to the best advantage. Transportation difficulties require that freight cars be loaded to their rated capacity. Delay in ordering, it is said, may result in a repetition of last spring's experience when many farmers failed to receive their mixed fertilizer and acid phosphate until after planting time.

RICE RAT STUDIES DESCRIBED

Results of a study of North American forms of the rice rats have been published by the Bureau of Biological Survey, United States Department of Agriculture, as "North American Fauna No. 43." This constitutes a revision of this group based chiefly on material in the collection of the Biological Survey.

Rice rats are distributed from Maryland and Delaware south through parts of the Southeastern States, Mexico, and Central America to South America, where they reach their highest development. While not so injurious to agriculture as some other rodents (gnawing animals), when they are in excessive numbers, they consume large quantities of forage. Because of their nocturnal habits, the animals have been little known.

The use of peanut flour in bread making will save an equivalent quantity of wheat for the allies. Peanut flour is a good part substitute for wheat flour in bread or pastry making, says the United States Department of Agriculture.

Success in Citrus Canker Eradication Begins New Era in Plant Disease Control

For more than three years the Federal Government and the Gulf States have been engaged in a joint campaign for the eradication from the United States of the disease of citrus fruit and trees called citrus canker. This undertaking is unique in character, in that it is the first instance of the use of Federal funds appropriated specifically for the eradication of a plant disease. It is of overwhelming importance to the citrus industry, because citrus canker has been recognized as the most contagious of all known plant diseases and the most destructive of commercial values.

When the disease was first recognized as a new one, an immediate and rapid inspection of the Gulf region by an agent of the Federal Horticultural Board of the United States Department of Agriculture, supplemented by reports from State officials, indicated the occurrence of infected citrus trees in more or less widely separated and sharply defined localities from southeastern Florida to southern Texas.

Disease Extremely Infectious.

In outlining plans for the eradication of citrus canker emphasis has been placed upon the magnitude of the undertaking because of the extreme infectionsness of the disease and the wide area throughout which it has been disseminated. Owners of citrus groves were advised that whenever symptoms indicating this disease appeared, they should take all possible precautions to avoid its spread, prohibit all visiting to the grove affected or those adjacent, stop all cultivating or other work, and send for a State specialist to determine definitely the disease.

Whenever a tree was found to be actually infected with citrus canker, the course advocated was to burn it at once. Although this treatment is extremely severe, it is the only one which has been found practicable and effective in checking the spread of the disease. This method of eradication, first used in Florida in the autumn of 1914, has been adopted throughout the entire region where citrus canker has been found, and additional safeguards not at first recognized as necessary were later employed.

The cooperative work of inspecting citrus groves and nurseries and destroying infected trees was begun in Florida immediately upon the approval of the urgent deficiency act of January 25, 1915, and shortly afterwards cooperative agreements for similar work were made with Alabama, Texas, Louisiana, Mississippi, Georgia, and South Carolina.

How Inspectors Disinfected Their Clothing.

Inspectors for citrus canker were required to wear suits similar to the overalls worn by thrashing crews or garage mechanics, completely covering their usual clothes, also leggins and canvas hats, all to be completely and thoroughly disinfected in a 1 to 1,000 solution of bichlorid of mercury before entering citrus properties and upon leaving them. At the same time inspectors were required to disinfect thoroughly their shoes, hands, and faces, and instructed to avoid touching any citrus trees when inspecting them, though if it became necessary to move a limb in order to thoroughly inspect a tree, this could be done with special precautions to avoid as far as possible the chances of spreading contagion from diseased spots not then visible to the naked eye. All apparatus taken into citrus groves, such as oil cans and special pumps for spraying oil or formalin, etc., had to be thoroughly sprayed with disinfectants before being taken from the orchard. Upon finding infected trees, the ground under the tree was sprayed thoroughly with a 5 per cent solution of formalin and, especially in properties where grove trees were of considerable size, the spraying with a 1 per cent formalin solution of all apparently healthy trees adjacent to infected trees which were to be destroyed was advised.

While these precautions are more extreme than have been found necessary in fighting any other plant disease, they are necessary on account of the extreme infectiousness or contagiousness of citrus canker; and partly because of this the success of the campaign for the eradication of citrus canker may be said to have established a new era in preventing and control work in dealing with plant diseases.

Find No Infected Trees in Florida.

Throughout the extensive citrus developments in Florida no infected trees have been found for several months past, but since it is unlikely that all traces of the disease have been discovered and eradicated, it would be unwise to relax the rigid campaign of inspection until another growing season has passed.

In the other States concerned the work is somewhat complicated by the rather general practice of mixed plantings of susceptible and somewhat resistant types of citrus trees. In South Carolina, however, it has progressed so satisfactorily that it is unlikely that further work will be required during the coming year, while in Alabama, Texas, Louisiana, Mississippi, and Georgia a longer time will undoubtedly be necessary.

SOUTH FOLLOWING "SAFE FARMING."

How the farmers of the Southern States are following the "safe farming" program, advocating the production on every farm of the food for the family and the feed for the live stock, is shown by the fact that in 1917 there was an increase in production of all food and feed crops in the South except rice and hay. A slight decrease in rice from the 1916 production was due principally to protracted dry weather and salt water.

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission calls attention to the need of eligibles for the position of machinist (male) in the departmental service at Washington, D. C. It is especially desired to fill a vacancy in the Department of Agriculture at $1,200 a year, the duties of which are machine work in connection with the repair of electrical machinery. Persons desiring early appointment to this service should file their applications without delay. Applicants should apply for Form 1800, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for assistant in marketing wool (male), Bureau of Markets, Department of Agriculture, for duty at Washington, D. C., salary $1,800 to $2,400 a year. Examination July 16, 1918. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended June 15, 1918:

A City Woman Who Found Her War Job on a Farm. Leaflet, Office of the Secretary.

The Soy-Bean Industry in the United States. Yearbook Separate 740.

Live Stock, 1917, and Miscellaneous data. Yearbook Separate 761.

Potato Culture Under Irrigation. Farmers' Bulletin 953.

Labor-Saving Practices in Haymaking. Farmers' Bulletin 987.

The Efficient Operation of Thrashing Machines. Farmers' Bulletin 991.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

LABOR-SAVING METHODS FOR BUSY SEASON IN CORN BELT

Careful Planning More Important this Year Than Ever

Use of Improved Machinery of the Most Effective Types and Cooperation Between Neighboring Farms in Securing Labor Will Help Relieve Situation

If any one period should be designated the "busy season" in the corn belt it is doubtless the one beginning about June 1 and continuing until after wheat harvest about July 10. During this period the labor schedule of the average corn belt farm is crowded to the limit by the most important operations of the year—the cultivation of corn, making of alfalfa, clover and mixed hay, and the harvesting of oats and wheat. This season is now opening in the most vital year that the agriculture of the country has known, and there will doubtless be difficulty in meeting the labor requirements at the more critical stages.

The Cultivation of Corn.

The harrow, weeder, and the rotary hoe.—By the use of such implements as the harrow, weeder, and rotary hoe the labor of cultivation may be materially reduced. In many instances the sprouting corn is gone over with one of these implements two or even three times before cultivation between the rows, thus keeping down weeds and putting the surface soil in excellent tilth.

The two-row cultivator.—Perhaps the greatest saving in man labor in corn cultivation is effected by the use of the two-row cultivator, which is especially suited to work on level fields such as predominate throughout the corn belt. Out of 237 farms visited in a recent investigation by the United States Department of Agriculture, 33 farms reported both one-row and two-row cultivators, and on 10 of these the two-row cultivator was used exclusively. With this implement one man with three horses may do practically the work of two men and four horses with one-row cultivators. With the one-row cultivator a man can cover from 5 to 8 acres per day; with the two-row cultivator from 10 to 15 acres. By the use of one extra horse and a two-row cultivator the efficiency of each man employed is thus practically doubled.

Putting Up Hay.

If the cultivation of corn were the only job to claim attention during this period the labor situation would be an easy matter, but before the cultivation is well under way those who have alfalfa must quit the corn, sometime between June 1 and 10, to take care of the first cutting of alfalfa hay. Clover harvest follows about June 15 to 25. This being a season when the weather is often unfavorable for taking care of hay, it is of utmost importance that rapid methods of handling these crops be used, not only to save time for corn cultivation, but to insure a good quality of hay. A big advantage is gained by having adequate hay machinery in first-class condition.

The barn fork and hay sling.—The barn fork is indispensable where any amount of hay is to be handled. Luckily in the corn belt most barns are thus equipped, but the hay sling is not so common. The use of one of these slings, laid flat on the wagon rack before loading, saves much time in cleaning up the last of the load, which otherwise must be pitched to the mow by hand.

Side-delivery rake and hay loader.—By the use of the side-delivery rake and a hay loader the hay can be cured mainly in the windrow and then can be taken up by the loader, thus saving time and eliminating the labor of shocking and of pitching by hand. If it rains, the windrows can be turned again by the rake, all hand labor in turning the hay being thus avoided. A crew of six men and eight horses, with a good hay loader and an effective barn fork and sling properly used, will put in the barn from 2 to 3 tons of hay per hour.

The buck rake and hay stacker.—Perhaps the fastest and most effective way of handling hay is by the use of the buck rake and some effective form of hay stacker. Such a combination is not often seen in the corn belt, but where there is any great amount of hay to be put in stacks these tools will prove of great value. By this method the hay may be shocked or taken directly from the windrow, in the latter case eliminating the labor of shocking, which is very desirable if weather conditions are good. Five men and six horses will stack from 2½ to 3 tons of hay per hour with such an outfit when handled effectively. There are various stackers on the market which work very satisfactorily, and there are many home-made stacking devices in successful use.

The haying crew.—It is highly important that the haying crew be large enough to do effective work. In many instances it is difficult to hire enough extra labor to handle the hay crop to the best advantage. In such cases it is often advantageous to have good equipment which requires several men, and exchange labor with one or more of the neighboring farms. With good equipment and a full crew, the hay on two farms can generally be handled in less time than that of a single farm with a smaller crew and with less effective machinery.

The Advantages of Planning.

This year the advantage in having carefully laid plans for keeping the farm work up to the season is more important than ever. The use of improved machinery of the most effective types and cooperation between neighboring farms as a means of securing the most effective size of crew will go far toward relieving any difficult labor situation confronting corn-belt farmers during the next few weeks.

WHAT THE COW-TESTING ASSOCIATION CAN NOT DO.

It can not compel a dairyman to dispose of his poor cows if he is determined to keep them. It can not make him feed according to production nor practice economy in the management of his dairy herd. It can not require him to dispose of his scrub bull and buy a better one. It has never yet demanded the planting of legumes and the building of silos. It never will compel, but it always will encourage economical improvement of the herd, of the farm, and of the business.—U. S. Department of Agriculture.

Weather Conditions in America Cabled to Europe Every 24 Hours

Even the weather in the United States is being watched from the western battle front in France. Like other events over here, such as the mobilization of man power and the conservation of food, the weather in the United States may vitally affect operations on the "frontiers of freedom."

Once every 24 hours a summary of weather conditions in the United States is cabled to officers of the Army who formerly were officials of the United States Weather Bureau.

The reason is that marked conditions of the weather in this hemisphere are likely to be reflected in the other, and the reason for that is the trend of the atmosphere toward the east. As the world revolves from west to east the atmosphere in mid-latitudes tends to move constantly toward the rising sun. A great storm in this country may have its counterpart in greater or less degree in Europe some days later. Fair weather on this side may mean fair weather over there within the week. Supplied with this, in addition to local information, the "officers of the weather over there" are aided in forecasting conditions favorable for airplane activity, artillery work, or other military operations.

One factor in favor of sheep production in these days of high-priced feed is the fact that sheep require comparatively small amounts of grain. While pastures and roughage are important in the production of cattle and hogs, these animals require more concentrated feeds than sheep.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Secretary Houston Addresses Iowa Bankers.

David F. Houston, Secretary of Agriculture, addressed the Iowa State Bankers' Association at Dubuque, June 20.

Raises More Pork and Helps Red Cross Too.

A Red Cross Pig Club—the first one in the United States—will send to the St. Louis market in September 3,000 hogs from Carrol County, Miss. This will mean more pork for the country, more money for Carroll County, and a contribution estimated at $10,000 to the Red Cross. The Red Cross Pig Club was organized last winter by O. F. Turner, county agent in Carroll County. He started out to combine pork production and Red Cross work and tried to get 2,500 people each to raise one pig to be known as a Red Cross pig. Instead of 2,500 members he got 3,000 in a county that has only 1,600 voters. Every banker, lawyer, minister, physician, and nearly every merchant in the county is a member. The pigs are weighed on the last Saturday of each month and a $25 registered pig is given as a prize to the member whose pig makes the greatest gain through each month. Five hundred Negroes are members.

Clearing Houses for Motor-Truck Route Information.

The Bureau of Markets is to open in several cities offices where producers and owners of motor trucks can get information looking toward the establishment of motor-truck routes for farm produce. It has been found that many trucks are idle part of the time and their owners are ready to make fuller use of the trucks if regular routes can be established in producing sections during periods of heaviest crop movement. Buffalo, N. Y., and Philadelphia, Pa., are the first two cities where information offices will be opened.

City People Sign Pledges for Farm Work.

Nine hundred experienced men were placed in regular farm work in one month this spring in Ohio, largely through the efforts of the farm-help specialists of the United States Department of Agriculture. Records of a similar nature are being made in other States where special efforts have been made to bring about a close cooperation between the town and country. For this purpose pledges are being secured in each town, city, and village from men who have had previous farm experience, to devote a few days or weeks of their time to harvest work during the coming season if their services should be needed. Farm-help specialists in Kansas have secured pledges of this kind from 50,000 city residents who have promised to devote 2 to 15 days of their time to harvest work this summer. Similar results have been obtained in Indiana, Illinois, North Dakota, South Dakota, Pennsylvania, Georgia, and Kentucky. Campaigns are either in active progress or are being planned in every State.

Don't Shoot Pigeons—They May Be Army Messengers.

The United States Department of Agriculture urges hunters not to shoot pigeons in air, for they may be homing pigeons being trained in many sections by the Signal Corps of the United States Army to carry messages across battle fields. Farmers and other breeders who allow their birds a few hours of liberty each day also are liable to loss from shooting.

Foreign Women Volunteer to Teach Canning.

Many foreign women who have received training in food conservation from home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges are volunteering for special canning work. One canning class held in Massachusetts was composed of four Finns, two Lithuanians, two Poles, two French, two Swedes, two Italians, and two Armenians. These women all understand English and will spend a large part of their time this summer giving demonstrations and helping people who speak their languages with canning work.

Difficulties in Increasing Supplies of Hemp.

The cutting off of supplies of hemp from Russia, the increasing difficulties in securing hemp from Italy, and also the difficulty in obtaining jute from India, make it imperative that more hemp be produced in the United States, according to United States Department of Agriculture officials. Owing to low prices for hemp compared with prices of tobacco and corn at the time of planting the hemp area in Kentucky is less than 8,000 acres, compared with 18,000 acres last year, but in Wisconsin, where the hemp fiber is all prepared by machinery instead of by hand, as in Kentucky, the area is 8,000 acres, compared with 7,000 last year. There has been a reduction also in the hemp for seed planted in the Kentucky River Valley, threatening a shortage of hemp seed next spring. The Wisconsin hemp growers are having 100 acres of seed hemp grown in Missouri.

Citrus Canker Campaign Successful.

The Federal campaign for the eradication of citrus canker in the Gulf States, the first instance of the use of Federal funds appropriated specifically for the eradication of a plant disease, has established a new era in the prevention and control of plant diseases, according to officials of the Bureau of Plant Industry. Throughout the extensive citrus developments in Florida no infected trees have been found for several months. In South Carolina and Georgia the work has progressed so satisfactorily that it is unlikely that further work will be required during the coming year, while in Alabama, Texas, Louisiana, and Mississippi more time will be necessary. The only method found practicable and effective in checking the spread of the disease is to burn down infected trees.

Tangelo, New Fruit, Produced.

A new type of fruit, which has been named the tangelo, has been produced by the Bureau of Plant Industry through a cross between the tangerine orange and the grapefruit, or pomelo. As a class the tangelos resemble round oranges more than either of their parents and are exceedingly variable. Two well-recognized varieties have been thoroughly tested and have been distributed to cooperators for further trial. The tangelo has little acidity and resembles a tender and good-flavored orange more than a grapefruit or tangerine.

Boys' and Girls' Liberty Food Club.

A Boys' and Girls' Liberty Food Club is being organized by the United States Department of Agriculture and the State agricultural colleges, composed of all club members in the 33 Northern and Western States. In order to become a member of this club each boy and girl enrolled in club work must sign a card pledging himself or herself, through food production and food conservation, to help win the war and world peace. By this pledge each member promises to endeavor to the best of his or her ability to follow instructions, attend meetings of the club, make an exhibit, keep accurate

records, and make a complete report of his or her activities and achievements. Each member is then furnished with a handsome certificate signed by the State club leader, and upon successfully completing the work of the club for the year is given a diploma of achievement.

Department's Work Outlined in Summer Schools.

To acquaint students with the United States Department of Agriculture and its work, so they may be better able to cooperate in campaigns to produce and conserve food, extension workers of the department will give lectures in summer schools in some of the State agricultural colleges. Arrangements have been completed for Prof. L. A. Clinton to give a series of five lectures at the summer school of the Colorado College of Agriculture on the activities of the department.

Home - Demonstration Agents Help Foreign-Speaking Women.

Home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges are helping women in this country who speak foreign languages with their food problems. In order to interpret the Government's rulings to these women literature has been printed in several languages and demonstrations are being given in the use of wheat substitutes. The demonstrations are held in the homes, in settlement houses, in churches, in liberty-bread shops, and in milk stations. A member of the group usually acts as interpreter or a young school girl comes to translate the demonstration to the mothers.

Flying Homers as War Message Carriers.

Homing or racing pigeons, known as flying homers, are in great demand by the Signal Corps of the United States Army as carriers of messages, and the United States Department of Agriculture urges pigeon raisers to give more attention to this breed. The pigeon section of the Signal Corps buys mature homers having satisfactory pedigree, breeds them, and trains the young birds. As the homing instinct of the old birds is already established and can not be changed, only the young birds thus trained can be used for military communication. They are one of the surest means of conveying word across the battle fields. Persons desiring to furnish the War Department with homing pigeons should apply to the Chief Signal Corps Officer of the nearest cantonment.

Professor Christie Member of War Labor Policies Board.

The Secretary of Agriculture has recently designated Prof. G. I. Christie to represent the United States Department of Agriculture on the newly established War Labor Policies Board. Prof. Christie, who is State director of agricultural extension work in Indiana, recently came to Washington to supervise, under Assistant Secretary Ousley, the farm-labor activities of the United States Department of Agriculture. The War Labor Policies Board consists of a representative from the War Department, Navy Department, Shipping Board, Railroad Administration, Department of Labor, and Department of Agriculture. The board will undertake "the formulation and execution of policies in regard to industrial relations that are the common concern of the various departments and other independent administrative agencies of the Government."

Woman County Agent Is Prize Canner.

A silver loving cup—first prize for the best exhibit of special fancy packs of citrus products at the national orange show—has just been received by Mrs. Dora R. Barnes, home-demonstration agent of the United States Department of Agriculture and the State agricultural college in Polk County, Fla. The exhibit put up by Mrs. Barnes and some of her club women was first shown at the Florida State Fair, where it took first prize. At the request of the Orange Growers' Association the exhibit was sent on to San Bernardino, Cal., to the national show. Another exhibit of special packs from Polk County has been sent by Mrs. Barnes to the Museu Nacional at Rio de Janeiro, Brazil, at the request of Dr. Carlos Moreiro, in charge. Dr. Moreiro has written the Office of Extension Work South that the exhibit is the finest they have ever seen and that it will be given a prominent place in the museum.

What Old Tin Cans are Worth.

Many letters in regard to the advisability of collection and sale of old tin cans are being received from private persons by the United States Department of Agriculture. The department has been informed by a company engaged in detinning work that cans practically free from rust and foreign matter are worth $12 a ton f. o. b. its factory, and that there are from 7,000 to 8,000 cans in a ton. The company stated it believes the recovery of tin cans to be advisable only in the larger towns.

Boys' and Girls' Clubs Champions Become Leaders.

Five former club champions have just been appointed paid leaders in boys' and girls' club work in the cooperative extension activities of the United States Department of Agriculture and the State agricultural colleges in the North and West. A drive for membership is under way, and many new leaders are being selected to help the boys and girls with their summer projects. April 1 there were 500 men and women leaders enrolled in this work in the North and West. An increase of nearly 700 emergency leaders since that time brings this force of extension workers near the 1,200 mark.

Cooperation in Sheep Grazing.

Groups of small sheep growers on the Minidoka reclamation project, Idaho, where approximately 500 settlers are producing sheep on their farms, are consolidating their flocks into larger bands for summer grazing. A field man of the United States Department of Agriculture is assisting in the work. The experiment in cooperative grazing was tried in 1917 with two range bands and the results were so satisfactory that the number of bands has been increased to four this season. Approximately 5,000 sheep, representing 24 small flocks, make up the four bands, which will be grazed on the Sawtooth National Forest. The farmers act as a unit in their dealings with the Forest Service and cooperate in furnishing supplies and equipment and in employing the necessary herders and camp movers. Through this cooperation it is possible for the small sheep growers to realize the benefits of inexpensive summer grazing for their flocks. The idea also is being tried this season on several other reclamation projects.

Cabbage Leaves as Fertilizer Doubtful.

The value of cabbage leaves as fertilizer is doubtful. They contain nearly 90 per cent of water, so that even if all the dry matter had fertilizing value, the quantity is ordinarily so small as to be of minor importance. In any case, the refuse should be plowed under on fields designed for the culture of crops other than cabbage or its relatives.

The weed fight is one of the standard routine operations on the farm, and it represents a large proportion of the labor necessary to produce crops. No other single feature of farming requires such universal and unceasing attention as do the weeds.

TURN WEEDS INTO MUTTON AND WOOL.

Is the fight to control weeds taking up much of your time and preventing you from doing other necessary farm work? If so, keep a few sheep—they consider most weeds choice feed. Instead of being a menace weeds can be turned into profit by this method—made to produce wool and mutton—both greatly needed in the Nation's war program. A small farm flock requires little but timely attention, will not interfere with other branches of stock raising, will add to the farm income, and be of great assistance in keeping the farm free from weeds.

Agriculture to Have Representation in Machinery of War Industries Board

Agriculture is to have representation in the machinery of the War Industries Board in the person of Hon. Henry G. Stuart, former governor of Virginia and a large live-stock producer in southwestern Virginia. At a recent meeting of the executive committee of the National Agricultural Advisory Council a recommendation was made that one of its members, serving without pay, should have headquarters in Washington, so that he might keep in touch with all Government agencies dealing with agricultural matters and inform all the members of the general committee of important proposals and secure whatever information and advice that may be desired by the Government agencies. Secretary Houston and Food Administrator Hoover accepted this proposal, as they did all the other proposals of the committee.

The executive committee also suggested that its chairman, who is also chairman of the national committee, should be placed in the machinery of the War Industries Board. This recommendation was conveyed by Secretary Houston to Chairman Baruch, who cordially assented to the proposal. The National Agricultural Advisory Council was constituted some weeks ago by Secretary Houston and Mr. Hoover to consult with the Department of Agriculture and the Food Administration from time to time concerning important problems in the field of agriculture. The members of the council represent all sections of the United States and all phases of agriculture and live-stock production.

The following resolutions, adopted for the consideration of the Secretary of Agriculture and the Food Administrator at a meeting of the executive committee of the agricultural advisory committee held in Washington May 28, 1918, and subsequent correspondence, show how agricultural representation came about:

The Committee's Resolutions.

Resolved, That we, the undersigned members of the executive committee, created in pursuance of a resolution of the full agricultural advisory committee at its initial session March 28 to April 3, 1918, appreciating the far-reaching importance of the many acts and proceedings of the various boards, councils, and committees dealing with agricultural interests during the war emergency, and believing that such boards, councils, and committees should be and are desirous of availing themselves of such information with respect to agricultural interests as the agricultural advisory committee or its executive committee can afford, do hereby suggest, in order that such information may be ·ily and immediately available for the consideration of such boards, councils, and committees, that meetings of the full committee should be held in Washington four times in each calendar year, to wit, during the months of March, July, September, and December, and that meetings of the executive committee should be held in Washington at the call of the chairman after consultation with the Secretary of Agriculture and the Food Administrator as often as may be deemed necessary. It is understood that the action of the executive committee is not to be final, except in cases of emergency, it being the purpose of said committee to keep in touch with the situation and communicate from time to time with the full committee in order that the sentiment of that committee may be had as to all questions which may not be deemed in the nature of emergencies.

To Keep in Touch With Activities.

Further, the executive committee now in session is of the opinion that one of its members serving without pay should have headquarters in Washington sufficiently fixed in character and facilities to keep in close touch with the activities of all boards, councils, and committees undertaking to settle questions which affect agricultural interests, and that ample means and opportunity should be afforded such member to be heard from time to time through proper channels on all questions involving in any material degree the agricultural interests of the country, and to keep the executive committee and the full committee informed of matters which may be properly considered within the scope of their advisory functions.

We offer these thoughts in the belief that many important questions are being considered and passed upon in perfect good faith without allowing opportunity to the large class affected by the decisions rendered to present in proper and legitimate form facts and conditions which are vitally necessary to any fair adjustment of these matters.

Must Consider Interests of Country.

The committee feels that the foregoing suggestions have added force from the fact that no member of any board, council, or committee possessing executive authority is directly identified with or acquainted with agricultural interests save one member of the wool division.

Further, we are of the opinion that while the advisory committee, acting through the Department of Agriculture and the Food Administration, should and must consider the interests of the country at large, and while the agricultural classes have accepted and will continue to accept cheerfully such Government regulations as have been and may be imposed from time to time in so far as they are proper and necessary in the supreme task which rests upon us all as citizens and patriots, we nevertheless submit that every good end sought can be accomplished while at the same time giving heed to the circumstances and conditions which are peculiar to the soil, thus lightening the burdens and increasing the productive efficiency of the great class of workers on whose efforts so much now depends.

Organize to Aid War Boards.

The agricultural interests of the country are not organized as are other interests for protection against uninformed, even though well intended, governmental action by the war boards, and for this reason we deem it essential that a committee of agriculturists already recognized by the Government, and including in its membership officials and representatives of the great national agricultural organizations, should be kept alive and vigorous in order that it may discharge in an intelligent and patriotic manner not only a great national service, but at the same time perform those manifest duties which this committee and each of its members owe to those whom they represent by virtue of their appointment.

HENRY C. STUART, *Chairman.*
C. J. TYSON,
OLIVER WILSON,
HENRY W. JEFFERS,
DAVID M. MASSIE,
ISAAC LINCOLN,
D. R. COKER,
Executive Committee.

Correspondence Showing How Representation Came About

GOV. HENRY C. STUART,
Chairman National Agricultural Advisory Committee, Elk Garden, Va.

DEAR GOVERNOR: We have considered the recommendations of the executive committee submitted to us at the close of its recent meeting here. The recommendations, as you summarize them, are as follows:

"1. That meetings of the full committee be held in Washington four times in the calendar year, to wit, in March, July, September, and December.

"2. That meetings of the executive committee be held in Washington, at the call of the chairman after consultation with us, as often as may be deemed necessary, it being understood that the action of the executive committee is not to be final except in cases of emergency.

"3. That one of its members, serving without pay, should have headquarters in Washington so that he may keep in touch with the activities of all agencies dealing with agricultural matters.

"4. That the national committee should be kept alive and vigorous in order that it may discharge in an intelligent and patriotic manner not only a great national service, but at the same time perform those manifest

duties which this committee, and each of its members owe to those whom they represent by virtue of their appointment.'"

We are very glad to approve these recommendations and we shall be glad to discuss with you at the first convenient opportunity the date for the July meeting of the national committee.

Recommendation No. 3 may be mentioned in connection with another recommendation made by the executive committee to the effect that the chairman of the executive committee, and also of the full committee, be attached to the War Industries Board for the reasons indicated in the recommendation. The chairman of the War Industries Board, as you know, has concurred in this recommendation and has asked for an interview with you at your convenience. This action will simplify the task of keeping in touch with the activities of all agencies dealing with agricultural matters.

Very truly, yours,

(Signed) D. F. HOUSTON.
HERBERT HOOVER.

JUNE 11, 1918.

Hon. DAVID F. HOUSTON,
Secretary of Agriculture.

SIR: The executive committee of the Agricultural Advisory Committee respectfully urge that a division of agriculture be created within and a representative of agriculture be placed upon the War Industries Board in order that the problems of production may have proper consideration and in order that every class of agricultural producers may feel that they are represented and may have confidence that the conditions under which they work are known to those having authority. Your committee further recommends that the agricultural representative on the War Industries Board be strengthened by a committee of producers equipped with office facilities at the National Capital, who will consider all recommendations made by producers and distributors, and who should be kept advised of all proposed Government activity related to agriculture and their judgment thereto secured. The committee undersigned respectfully recommends the appointment of Hon. Henry C. Stuart to this important position.

C. J. TYSON, *Secretary.*
OLIVER WILSON,
DAVID M. MASSIE,
ISAAC LINCOLN,
HENRY W. JEFFERS,
D. R. COKER,
Executive Committee.

MAY 31, 1918.

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, June 5, 1918.

Hon. HENRY C. STUART,
Chairman, Agricultural Advisory Committee.

DEAR GOVERNOR: As recommended by the executive committee, I have taken up with Mr. Baruch the suggestion of having you, as chairman of the executive committee and also of the whole committee, connected with the War Industries Board for the purpose indicated by the committee. I have just received a letter from Mr. Baruch stating that he will be glad to have you serve in connection with the War Industries Board and that he would like to see you and discuss the matter with you. He adds that he is very sure that you and the committee would be very useful to the board. May I suggest that you take advantage of the first opportunity to confer with Mr. Baruch?

I am sending a copy of this letter to each member of the executive committee for their information.

Very truly, yours,
(Signed) D. F. HOUSTON,
Secretary.

KANSAS ENROLLS CITY PEOPLE TO HARVEST WHEAT CROP

Kansas is to harvest her 100,000,000-bushel wheat crop by the use of men of farm experience from the offices, stores, and shops in towns and cities to supply the lack of other labor available for farm work. It is estimated that 80,000 men will be needed from June 20 to the middle of July. The chambers of commerce, the mayors and other leaders are cooperating with the forces of the United States Department of Agriculture and the agricultural college to enlist the necessary number of men.

Reports recently received by the department show Kansas City, Mo., has enrolled 10,000; Kansas City, Kans., 1,200; Topeka, 2,100; and other cities and towns are responding in like proportion. The enrollment is made by a well organized farm-labor drive after the manner of Liberty loan and Red Cross drives. Similar plans by the department and the land-grant colleges will be put into effect in all the grain States, for, under present labor conditions, this is the only method of saving the big wheat crop which is now in prospect.

USE OF WOMEN ON FARMS.

As to the use of women on the farms, the department recognizes that they can be of great value in certain minor tasks, but the department believes that if men of farm experience in the towns and cities can be released by the substitution of woman labor temporarily, the needs of farmers will be supplied and there will be little demand for woman labor on the farm except for the lighter tasks.—Clarence Ousley, Assistant Secretary of Agriculture.

Why Chickens Come First in Scheme of Poultry Production

Chickens, in any general scheme of poultry production, of course, must take first place. They are best adapted to general conditions, take a wider range of feeds and convert them, perhaps, with the greatest margin of profit. Chickens, better than any other class of poultry, utilize table scraps and the general run of waste from the kitchen door, all the way from apple and potato parings to sour milk. Chickens far surpass all other kinds of poultry in salvaging waste grain from the stables, from the shed or lot where the cattle are fed, and from hog pens. During the winter months on farms where any considerable number of live stock are kept, the hens would take their living from these sources with only slight additional feeding from time to time. Chickens are great destroyers of insects, including many injurious forms, in yard, pasture, and orchard. They utilize also many grasses and weeds and seeds from the same that would otherwise be of no use. Except in isolated instances the part of wisdom would be, undoubtedly, to keep more chickens than all other kinds of poultry combined, but there should be, in a majority of cases, some of all the other common kinds of poultry.

Ancient Farm Practice Needed—Roman Farmers Stored Forage

History tells of Roman farmers who carefully chopped fine various green, succulent feeds and packed them in pits for use during the winter season. The practice seems to have been common and the feed kept well. From these early times it has been good practice to store various green crops in pits or airtight containers for feeding to stock. The silo is the present day result, and a farmer who raises live stock can not afford to be without one. The advantages of the silo are numerous, but some of the more important are:

1. Green, succulent feed is available throughout the year.
2. A silo stores more feed for less cost than any other farm building.
3. The feed is handy for use.

During 1917 five States enacted improved legislation to protect sheep raisers from dogs, and a number of other States are likely to take similar action. This is a boost for the sheep industry.

Hens like freedom, but good feed and care reconcile them to confinement. Mature, rugged birds often lay more eggs in close confinement than when at liberty.

FEDERAL HIGHWAYS COUNCIL TO CONTROL ALL ROAD WORK

Coordinated Governmental Agencies Will Work to Avoid Delays and Losses

Board Includes One Representative Each from War Department, Department of Agriculture, Railroad Administration, War Industries Board, and Fuel Administration

All functions of Government agencies relating to streets and highways hereafter are to be coordinated in a body called the United States Highways Council, composed of one representative each from the War Department, the Department of Agriculture, the United States Railroad Administration, the War Industries Board, and the Fuel Administration.

Membership of the board follows: War Department, Lieut. Col. W. D. Uhler; Fuel Administration, C. G. Sheffield; War Industries Board, Richard L. Humphrey; Railroad Administration, G. W. Kirtley; Department of Agriculture, L. W. Page.

These representatives on June 8 selected Logan Waller Page, Director of the Office of Public Roads, Department of Agriculture, as chairman, and J. E. Pennybacker, chief of management of that office, as secretary.

Prevent Delays and Uncertainty.

The council was formed primarily to prevent delays, financial loss, and uncertainty incident to the method of taking up each highway problem in its turn with a separate and distinct Government agency. It utilizes the organizations of the 48 State highway departments with their trained personnel and their knowledge of local conditions and provides a single agency where all highway projects calling for governmental action of any character, whether it be a question of finance, of materials, transportation, or of war necessity or desirability, may be dealt with. All the Government agencies represented are concerned in highway matters.

The War Department constructs hundreds of miles of roads in cantonments and posts and is frequently interested in highways connecting them with cities and shipping points. It is also interested in the through highways over which Government truck trains are operated and any other highway affecting any war activity.

In Touch With States.

The Department of Agriculture is intrusted with the administration of the Federal aid road act, which carries an appropriation of $85,000,000 during a five-year period, and calls for an expenditure of at least an equal amount by the States in conjunction with the Federal appropriation. The Office of Public Roads also expends a number of smaller appropriations under authority to make scientific investigations and to give out information concerning highways. In this educational work, as well as in the Federal aid highway work, it is in constant touch with the highway departments of the 48 States.

The Railroad Administration can influence vitally the construction and upkeep of public highways, as vast quantities of crushed stone, gravel, sand, cement, brick, reinforcing and structural steel, and bituminous materials are required to be transported by rail. Shortage of open-topped car equipment because of need for shipment of coal, coke, and ore has made it seem necessary that less important work may be postponed. This has resulted in an order by the Car Service Section of the Railroad Administration providing for appeal to the Director of the Office of Public Roads, through the State highway departments, where needs are urgent and the local railroads can not handle the situation. The Director in turn brings the appeal before the United States Highways Council.

Road Oils Restricted.

The Fuel Administration, through its control of fuel, including fuel oils, has restricted to essential purposes, in order to conserve fuel oil for war needs, the use of road oils, asphalts, and tars in street and highway work. In consequence, these materials for highway use are delivered by manufacturers and refiners only on a permit issued by the Fuel Administration based upon a recommendation by a committee representing the Office of Public Roads and the Oil Division of the Fuel Administration, this committee forming part of the United States Highways Council.

The War Industries Board, by reason of its control of many of the materials entering into highway construction and maintenance, and its power to establish priorities, allocate materials, and fix prices, enters prominently into the field of highway work.

The Capital Issues Committee, while not represented in the council, still is interested in highway construction in that it is required to pass upon bond issues involving $100,000 or more. Hundreds of millions of dollars have been voted annually and sold for highway and street purposes.

Restrict Work to Essentials.

The Highways Council has provided a definite form on which application to it for relief may be made, and has placed a supply of these forms with the State highway departments through which all applications must come. The council emphasizes the great need of conserving money, transportation, labor and materials by restricting highway and street work to the most essential needs. It considers the maintenance of existing streets and highways logically should rank first in importance and that the reconstruction of these sections of improved highways and streets which have become too defective for maintenance should next receive attention. New construction is held to be justified only where the highways are vitally important toward the winning of the war or for the movement of essential commodities.

COTTAGE CHEESE LUNCHEON REPEATED

When the Department of Agriculture opened the national campaign to encourage the production and use of cottage cheese, officials of the department and of the Food Administration were guests at a luncheon at the Dairy Division in which every dish had cottage cheese as a basis.

The cottage-cheese menu used at that time was repeated recently by the Rotary Club of Springfield, Mass., with the assistance of representatives from the Massachusetts Agricultural College, at a luncheon in that city. All ate the new dishes and pronounced them excellent.

The menu included cream of cottage cheese soup, cottage-cheese sausage with creamed potatoes, cottage-cheese salad, cottage-cheese tarts, whey honey and whey punch, in addition to mints and coffee. These dishes, and many others having this cheese as a basis, are described in a circular recently published by the department, "Cottage Cheese Dishes."

DANGER IN DELAYING FOOD CONTAINERS

Shippers of perishables and manufacturers of containers should act immediately to prevent food losses this season by providing crates, barrels, hampers, and baskets for perishable products in time for the shipping season, the United States Department of Agriculture advises. Manufacturers will be greatly aided if shippers and growers will order early instead of waiting until the shipping season begins in their locality. This will prevent plants shutting down and help to utilize every facility and worker of the manufacturer.

The threatened shortage of containers is general both in territory and in types of packages. Bear in mind, says the department, that perishable fruits and vegetables marketed in containers are to a large degree substituted for the staple foods now being sent to feed our soldiers and the people of the allies. Perishables wasted here lessen the supply "over there."

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. V JULY 3, 1918 No. 48

CALLS UPON CITIES TO HELP WITH THE CROP HARVESTS

Assistant Secretary Ousley Says Farmers Alone Can Not Save Them

Unselfish Service Imperative Demand of the Hour Department Official Tells Virginia Bankers—Must Strip for War

American farmers will not need outside help to feed themselves, and it is time for city consumers in the United States to take some concern for their own sustenance, Clarence Ousley, Assistant Secretary of Agriculture, said in an address June 21 before the Virginia Bankers Association at Old Point Comfort, Va.

"The time has come," said Mr. Ousley, "when by public opinion or by local law, State and municipal, but most important of all by the example of men of affairs who are the leaders in their communities, every able-bodied man must be persuaded to cease doing things that women can do as well or things that are unnecessary from the standpoint of war and needful business activities. In a time like this no man has a moral right, whatever his fortune may be, to employ another man to render any service of mere comfort or convenience when the finest young men of the United States are in France digging ditches, sawing lumber, laying rails, and playing with death; and when the finest young women of the United States are scrubbing floors in hospitals; and it is a sin that almost approaches the unpardonable offense against civilization for any man or woman in the United States to engage in a wasteful or unnecessary service."

Food or We Fail.

"Failure in food production," said Mr. Ousley, "will make vain all our armies and all our war materials.

"Nor can we afford to hope for the starvation of the central powers," he continued. "While the German conquest of Russia and the Balkan States has interrupted agriculture, which will not recover its normal activity this year, it can not be doubted that the central powers will gain from these conquered lands enough food to sustain them another year, and unless there is counter-revolution beyond any present prospect the supplement of food from these countries will increase from time to time. Unless Germany has lost her genius for agricultural efficiency, her experts are right behind her armies in the conquered territory furnishing expert information and stimulation, and holding out to the impoverished peasants promises of high prices and prosperity beyond anything they ever experienced."

Farmers Doing Their Part.

"There has been no breakdown in agriculture," Mr. Ousley asserted. He spoke of the creation of the Department of Agriculture and the land-grant colleges more than half a century ago as providential, and of the development of the department as constituting "a body of statesmanship less spectacular, but more fruitful of human comfort and happiness, more potential in the present crisis, than any single or collective body of statesmanship in the history of the Republic or possibly in the history of the race." He told how American farmers, under the direction and stimulation of the Department of Agriculture, have met their war tasks from the beginning and of the great promise in the crops of 1918.

"Respouding to the appeals of the Government," said Mr. Ousley, "and accepting the

(*Continued on page 2.*)

LENGTH OF THE WAR.

Far-seeing men believe that we have just begun to fight, and wise men realize that the only safe policy is for us to assume that the struggle will be long and bitter.

It is vain to ask how long the war will last, for such questioning tempts us to guess, and when we go to guessing our self-interest causes us to guess the best and so to take some chance in effort or sacrifice. All that we know is that we must win.—From address by Clarence Ousley, Assistant Secretary of Agriculture.

BLACK WALNUT IN DEMAND FOR GUNS AND AIRPLANES

"Get Every Available Tree to Market," Aim of Forest Specialists

List of Buyers Can be Obtained from Forest Service, Which is Aiding in Locating Supplies of This War Wood

The Department of Agriculture has undertaken to assist the War Department in obtaining the large quantities of walnut timber needed for gunstock and airplane propeller material. The demand is far beyond what can be supplied through the usual channels of trade. Appeal is being made to all owners who can be reached to assist in getting every available walnut tree to market. This is urged both as a patriotic duty and as good business, owing to the high prices now being paid for walnut.

Because of its resistance to warping and splitting, walnut is the best wood for these essential parts of our war-making equipment. Experts of the Forest Service are in the field locating available supplies. Considerable quantities of walnut have been reported by the county agents, and the Boy Scouts, at the request of President Wilson, are making a canvas of walnut owners.

Where to Sell.

The firms having contracts with the Government to furnish black walnut for gunstocks and airplane propellers and subcontractors of those concerns afford the best markets. These buy logs in lots of a carload or more, standing walnut of a merchantable amount, and lumber of specified kinds. A list of these firms may be had by applying to the Forest Service, Washington, D. C. No direct purchases of walnut timber are made by the Government; it is merely using its machinery to locate the timber and stimulate the placing of it on the market by bringing the manufacturers and timber owners together.

(*Continued on page 8*)

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U. S. HUNTERS MAKE WAR ON WILD ANIMALS; SAVE MEAT

Force of 300 Reduces Cause of $300,000,000 Food Loss

Wolves, Coyotes, Mountain Lions, Bears, and Bobcats, Enemies of Farm Live Stock, Destroyed in Large Numbers—Rodents, too

One cold day last March a hunter of the Biological Survey, United States Department of Agriculture, traveling the rugged country of Arizona, picked up the trail of a mountain lion. He got his gun ready and spurred his horse, but nightfall found him still on the hunt. He followed the next day and the next, and on the third day of his pursuit he had found proof of how much damage a mountain lion can do. Nine head of cattle, freshly killed, and evidently the work of the mountain lion, were scattered along the trail. But on the evening of the third day the hunter caught up with the lion, and one more of the predatory animals, that, along with injurious rodents, annually take more than $300,000,000 worth of foodstuffs from Uncle Sam, bit the dust.

Sale of Furs Brings $79,000.

This was one of many instances in a fight that goes on throughout the year between Uncle Sam's forces and predatory animals in Montana, Wyoming, Colorado, New Mexico, Texas, and the States west to the Pacific coast. On an average 300 hunters, including State cooperative workers, are engaged constantly. Not only does the killing of predatory animals mean food saved, but it means money for the Treasury of the United States. In the present fiscal year more than $79,000 has been realized by the Government from sales of furs of animals killed by the Federal hunters. This sum, compared with $8,614.08 received in 1916 from this source, shows the progress of organization of the work.

The annual estimated loss of $300,000,000 in meat, grain, and other foodstuffs and wool, comes not alone from wolves, coyotes, mountain lions, bobcats, and stock-killing bears, but from such noxious rodents as ground squirrels, prairie dogs, pocket gophers, jack rabbits, mice, and rats. Against the bigger animals traps and guns are used. Poisoning is the principal weapon against the rodents. It is believed that before many years the losses will be largely eliminated.

Wolf's Damage, $1,000.

It is estimated that on the average each wolf in a year destroys $1,000 worth of live stock, each coyote $50, each mountain lion $500, and each bobcat $50 worth. After personal investigation the president of the New Mexico Agricultural College reported that predatory animals annually destroy 3 per cent of the cattle in Mexico, the loss being about 34,350 head, and kill also about 165,000 head of sheep. A wolf recently killed at Nutt, N. Mex., by a department hunter was reported by stock owners of that vicinity to have killed in the preceding six months 150 head of cattle worth not less than $5,000. The danger and destructiveness of such animals has been greatly increased by the prevalence of rabies among them in several States.

Because of the results secured in protecting and saving live stock, State live-stock associations and individual ranchmen are cooperating with the bureau by providing increasingly large sums of money to employ hunters to work under direction of the inspector in immediate charge.

Whole fields of wheat are frequently destroyed by ground squirrels and prairie dogs, and the cuttings of these animals along the borders of fields greatly reduce the grain harvest. Many millions of acres of rich farming land are infested by these pests, which have found grain-raising operations favorable to their increase. Systematic poisoning campaigns to destroy them have been organized and already have had great results. Against the rats and mice a nation-wide educational campaign, telling of their destructiveness, their disease-carrying habits, and methods of destroying them, has been launched.

CALLS UPON CITIES TO HELP WITH THE CROP HARVESTS

(*Continued from page 1.*)

advice of the department and the land-grant colleges as to the crops needed, and giving the least concern to the crops that seemed to the individual farmer to promise the greatest profit, the farmers of the United States have put under the plow this year more land than was under the plow last year, and if the weather continues favorable but one thing can prevent the continuance of food sufficiency. That one thing is farm labor."

Immigration has stopped, he said, probably until many years after the war; war industries are drawing more men from the farms to the cities. The Government can not create nor coerce labor, nor "can we afford to diminish or in the slightest degree hinder our war industries nor stop by one man the flow of soldiers to reenforce our hard-pressed allies on the western front.

"The farmers have planted the crops. God has sent the sunshine and the rain to make them grow. The farmers alone can not harvest the crops. We must have the crops. What are we going to do about it?"

Must Strip for War.

Mr. Ousley put the need for farm labor squarely up to the cities.

"We have got to strip for war as England, France, Italy, and Belgium have stripped," he said. "We can not win the war and maintain peace-time habits and conveniences. We can not win it by depending upon the men, women, and children who are now on the farms and who are working from daylight to black dark.

"Last year in many agricultural regions where ordinary farm labor was not available on call the people of the towns and cities closed their stores and shops and offices for a day at a time or for such time as was necessary and saved the crops. By concert this can be done anywhere without material loss to any business or any industry.

"Unselfish service is the imperative demand of the hour."

AVOID DELAYS IN THRASHING.

Every hour is valuable in farm work this year. Every hour that a thrashing machine is kept idle because of breakage or bad adjustment means time lost in the work of getting food for the soldiers fighting to preserve American principles and America. To tell ways of preventing such delays the United States Department of Agriculture has issued Farmers' Bulletin 991, "The Efficient Operation of Thrashing Machines," which will be sent free on request.

How the South Conserved Food in 1917 Shown in Recent Compilation

Approximately 200,000,000 cans of fruits and vegetables were preserved for future use through the work of the home-demonstration agents in the Southern States in 1917, according to reports to the Office of Extension Work South of the States Relations Service.

In the regular home-demonstration work 82,227 women did regular work in their homes for the benefit of themselves and their community clubs; 3,812 community clubs of women were organized for instruction; 73,306 girls were organized into clubs. The girls enumerated put up 12,844,513 cans of fruits and vegetables, while the women put up 34,993,677 cans. These women and girls also used the new home drying process, taught for the first time last year, and thus preserved 5,511,881 pounds of dried vegetables and fruits. They pickled or brined vegetables to the extent of 1,178,683 gallons.

In addition to this regular work the agents working in 1917 enlisted an emergency enrollment in the South of about 2,600,000 women and girls who undertook to raise gardens and especially to can and preserve for future use.

TO PRESCRIBE STANDARDS FOR AMERICAN EGYPTIAN COTTON

Five Grades and Three Lengths Soon to Be Promulgated

Copies of Standards to be Ready for Distribution Before Next Marketing Season Opens—40,000 Bales This Season

Standards for American Egyptian cotton, 40,000 bales of which probably will be grown in the Southwest this year, soon are to be promulgated by the United States Department of Agriculture, according to a statement issued by the department recently. The range of grade qualities of this cotton will be covered by five grade standards—No. 1, or Fancy; No. 2, or Extra; No. 3, or Choice; No. 4, or Standard; No. 5, or Medium. The standards for length will show three staple lengths—1½, 1⅝, and 1¾ inches. The standards will be expressed in cotton of the variety known as Pima, which is the variety being planted almost exclusively this season. Suitable material has been collected and purchased for making up the standards, and copies of them will be ready for sale before the marketing season of 1918–19 opens.

The statement in full as issued by the department is as follows.

Designated "American Egyptian."

"For some years past, a special type of Egyptian cotton has been produced commercially in certain of the irrigated sections of Arizona and southeastern California. This type of cotton was formerly known commercially as Arizona Egyptian cotton, but will now be designated as American Egyptian cotton, because it is being grown in States other than Arizona. The present indications are that the commercial crop of this type of cotton for the season of 1918–19 may aggregate 40,000 bales, or more. The Department of Agriculture has been cooperating with the growers in developing this new industry. One of the features of this cooperative work has been the standardization of the commercial product. Investigations made in connection with this standardization work have shown that it is practicable to cover the range of grade qualities of this cotton with five grade standards. These grade standards will be as follows. No. 1, or Fancy; No. 2, or Extra; No. 3, or Choice; No. 4, or Standard; No. 5, or Medium.

Expressed in Prime Variety.

"Preparations are now being made to promulgate officially these five grades of American Egyptian cotton and also standard for staple lengths. The standards for length will show three staple lengths, which will be known as 1½, 1⅝, and 1¾. Only the first two will be available for distribution at this time.

"These standards will be expressed in cotton of the variety known as Pima, which is the variety being planted almost exclusively the season of 1918. Suitable material has been collected and purchased for making up these standards of grade and length, and copies of the standards will be ready for sale before the marketing season of 1918–19 opens. The price of the copies will be $5 for each grade box and $25 for the full set of five grades, and samples of the length standards will be offered for sale at $1 each. Any parties contemplating the purchase of a set of copies of these standards can secure the desired information by addressing Charles J. Brand, Chief, Bureau of Markets, Department of Agriculture, Washington, D. C."

Road construction and maintenance in the United States involve an annual outlay of over $300,000,000, a sum which, if capitalized at 5 per cent, would represent an investment of $6,000,000,000.

Average Life of Farm Tractor About Eight Years, According to Experienced Owners

The average life of a farm tractor is from 7½ to 8 years, according to estimates furnished by over 600 experienced tractor owners on representative corn-belt farms in Illinois. This is brought out in a study conducted in 1917 and the spring of 1918 by the United States Department of Agriculture, a report of which is published in Farmers' Bulletin 963. The reports of the tractor owners show that the outfits are used on an average of 45 days per year.

While at first glance this may appear low, when it is remembered that on farms where horses do all the work they are used on an average of only about 100 days annually, it will be seen that where both horses and tractor are used, even though the number of horses is somewhat reduced, the machine need not be expected to have employment for as many days annually as did the horses. The horses kept will still do some of the work, which will, of course, decrease the amount to be done by the tractor. A considerable percentage of the 100 days' work done by horses represents odd jobs for which the tractor can not be used to advantage. Even if the machine were to do all the work formerly done by the horses, it would not normally be employed 100 days per year, inasmuch as it does the work more rapidly.

Farm Management an Important Factor.

It should be borne in mind, says the bulletin, that practically all farm operations must be carried on within limited periods, and that between these seasons there will often be no field work which the tractor can do, either on the home farm or for neighbors. The fact that weather and soil conditions are such as to permit field work with a tractor does not necessarily mean that there is such work to be done. Farm management plays an important part in organizing the farm so as to provide profitable employment for the tractor during as many days as possible. Such organization involves the planning of a crop rotation which will furnish a large amount of work which it can do, the elimination of as many horses as desirable, and the distribution of the work over a long period. However, the rotation should include only such crops as can be grown profitably in that particular section.

The significance of the fact that a large percentage of the Illinois farmers who reported enlarging their farms after buying tractors is readily apparent when the tractor's place in farm management is thus considered. Obviously these men have learned through experience that much more land per man can be handled when a tractor is used than with horses only, and that to get the most out of their investment they must farm land enough to keep their tractors busy at profitable work throughout as much as possible of the available working season.

CAUSES OF WASTED GRAIN.

If a thrashing machine fails to separate all the grain from the straw it usually is because the machine is not being run at its proper speed; it being crowded beyond its capacity, the cylinder fails to thrash all the kernels out of the heads, the separating mechanism is not level, or the blast is not adjusted properly.

Methods of preventing these and other causes of waste are given in Farmers' Bulletin 991, "The Efficient Operation of Thrashing Machines," just issued by the United States Department of Agriculture.

Cracked grain is another source of waste which may become serious. Cracked grain may be due to excessive speed of the cylinder, to the cylinder being too close to the concave teeth, or to grain being returned in the tailings elevator and run through the cylinder repeatedly. Loss both from poor separation and cracked grain can be largely prevented by proper adjustment of the machine and attention to it while in operation.

President Authorizes Wheat Purchase—Above Basis Price Permits Buying

The following Executive order was issued by the President June 21, 1918:

EXECUTIVE ORDER.

By section 14 of the act of Congress of August 10, 1917, entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," it is provided that whenever the President shall find that an emergency exists requiring stimulation of the production of wheat, and that it is essential that the producers of wheat produced within the United States shall have the benefits of the guarantee provided for in that section, he shall determine and fix and give public notice of a guaranteed price for wheat; and that thereupon the Government of the United States guarantees to every producer of wheat that he shall receive under conditions named a price for wheat not less than such guaranteed price. Under this provision an Executive proclamation was issued on February 21, 1918, making the necessary findings and fixing guaranteed prices for wheat when delivered at certain specified primary markets.

It is further provided that for the purpose of making any guaranteed price effective under that section, or whenever he deems it essential in order to protect the Government of the United States against material enhancement of the liabilities arising out of any guaranty under this section, the President may in his discretion purchase any wheat for which a guaranteed price shall be fixed under this section, and may hold, transport, or store it, or sell, dispose of, and deliver the same to any citizen of the United States or to any Government engaged in war with any country with which the Government of the United States is or may be at war or to use the same as supplies for any department or agency of the Government of the United States.

It is further provided by section 11 of said act of Congress that the President may from time to time purchase, store, provide storage facilities for, and sell for cash at reasonable prices, wheat, flour, meal, beans, and potatoes; and by section 2, that in carrying out the purposes of such act, the President may create or use any agency or agencies, and utilize any department or agency of the Government.

Acting under the authority of the foregoing provisions, I hereby designate the Food Administration Grain Corporation, a corporation created in accordance with the provisions of said act of Congress and Executive order dated August 14, 1917, as the agency of the United States to carry out and make effective, subject to the control and direction of the United States Food Administrator, the provisions of the guaranty hereinbefore referred to, and to purchase, hold, transport, store, provide storage facilities for, sell, dispose of, and deliver wheat as provided in sections 11 and 14 of said act. I further direct that in order to make said guaranty effective and maintain the price of wheat to the grower at not less than the guaranteed basis the said corporation shall offer and stand ready to purchase, and shall purchase to the full extent of its ability and available funds, all wheat tendered to it by any producer thereof at any primary market named in said proclamation of February 21, 1918, at the guaranteed price named therein for such market, provided that with the approval of the United States Food Administrator the said corporation may pay any higher price than the guaranteed basis for any grade of wheat in any given market, and may extend its offer to purchase to other holders of wheat on such conditions as it sees fit.

I further direct that for such purpose the capital stock of such corporation be increased to 1,500,000 shares of the par value of $100 each; that the United States purchase from time to time at par so much of the additional capital stock as may be required to supply the necessary capital to enable said corporation to carry out the provisions of this order, and that none of said additional capital stock shall be sold to any person other than the United States. The United States Food Administrator is hereby authorized and directed to subscribe for and purchase all or any part of said additional capital stock in the name of and for the use and benefit of the United States, and to pay for the same out of the appropriation of $150,000,000 authorized by section 19 of the act of Congress hereinbefore entitled. I further authorize said corporation to borrow such sums of money, upon the security of wheat or flour owned by it, as may be required to carry out the provisions of this order.

WOODROW WILSON.

THE WHITE HOUSE,
21 June, 1918.

NO UNIFORMS FOR FARM WORKERS.

The idea of furnishing a uniform for industrial workers, while it appeals very greatly to sentiment, appears to be altogether impracticable. Farm labor does not suggest a uniform. For the most part, farm labor is done in shirt sleeves and overalls, and such town people as may be induced to do farm labor will find it more economical and more convenient to use their old clothes.—Clarence Ousley, Assistant Secretary of Agriculture.

WOOL CONSUMPTION IN MAY LARGEST OF ANY MONTH IN 1918

More wool was used by manufacturers in May than in any other month of this year, according to the monthly wool consumption report just issued by the Bureau of Markets. May consumption was 74,600,000 pounds, grease equivalent, compared to 70,700,000 pounds in April, 71,900,000 in March, 63,700,000 in February, and 65,100,000 pounds in January.

Stocks of wool consumed in May by classes, in pounds, were: Grease wool, 43,597,175; scoured, 13,557,733; and pulled ,2,969,638. Consumption by States for all classes of wool, in pounds, was: Massachusetts, 26,929,805; Pennsylvania, 7,340,343; Rhode Island, 7,286,722; New Jersey, 5,870,283; New York, 3,996,435; Connecticut, 2,075,806; New Hampshire, 1,653,168; Ohio, 1,443,189; Maine, 989,958; and all other States 2,929,157.

The report is issued earlier in the month than has been possible heretofore, because of the cooperation of manufacturers in returning schedules promptly. Out of 576 schedules sent out 522 manufacturers reported wool used; 47 no wool used in May; 6 used tops and yarns; while one who failed to report represented a capacity of only 5 worsted combs.

If the first appearance in this country of weeds, such as Russian thistle, field hawkweed, and Canada thistle, had been reported, much of the loss and trouble which they are causing might have been avoided. It is important to report the appearance of new weeds and to take precautions to prevent their dissemination.

A hundred hens on every American farm, a hundred eggs from every hen. That means 60,000,000,000 eggs per year—a military resource not to be ignored.

West Virginia to "Carry On" for Food in Spite of Difficulties

This message, expressing the determination of West Virginia to carry through its food-production program in spite of difficulties, came to Secretary Houston June 18, from C. R. Titlow, Director of Agricultural Extension:

"County agents, home demonstration agents, and specialists of West Virginia, in conference held at Martinsburg and Huntington, report 1,000 organized clubs of farmers, farm women, boys, and girls enthusiastically following the leadership of the agricultural extension department, in cooperation with the United States Department of Agriculture, carrying out the State program adopted by the farm bureau of the State during farmers' week held at Morgantown last January. Seed-corn situation solved, and shall have corn crop much beyond our estimates. Shortage of farm labor being felt, but by organized cooperation in the local clubs will successfully raise and harvest the crops, though they are 15 per cent larger than last year and laborers are at least 10 per cent less. West Virginia is lined up with all America and the allies to defeat the Huns."

In reply, Clarence Ousley, Acting Secretary, sent the following message:

"I wish to congratulate you upon the splendid work of your extension division in organizing farmers, their wives and children, in West Virginia. The Department also appreciates the effective work which the farmers have done in increasing their acreage in corn in spite of the decrease in the number of available laborers. The department realizes that the farmers' patriotism will enable us this year to produce the largest crops in the history of the Nation."

Avoid Thrashing Delays by Keeping Tool Box Well Stocked

The tool box is an important part of every well-operated thrashing machine. Lack of the tools and minor repair parts which belong in the tool box is responsible for many exasperating delays. It should contain wrenches, hammers, files, a vise, and whatever other tools are necessary for taking off and putting on minor parts of the machine and making minor repairs. It should always contain a sufficient supply of bolts, nuts, keys, and nails to make sure that no time will needs be lost while any of these things are hunted for elsewhere. Likewise there should always be on hand a supply of good belt lacing, the implements for trimming the belts, punches for making the lace holes, and also a supply of extra links for all the chains on the separator. Some extra lagging for covered pulleys and rivets or nails for putting it on should also be included.

All these things, and others which probably will be needed in the course of the season's work, should be provided before thrashing begins, says the Department of Agriculture in a new publication, "The Efficient Operation of Thrashing Machines."

The germs of some of our worst plant diseases, including the black-rot and black-leg of cabbage, have been found to overwinter on the seed. For this reason it is always advisable, as a precautionary measure, to treat the seed with some disinfectant before sowing.

WORK OF SOUTHERN COUNTY AGENTS REACHED 1,650,000 FARMS LAST YEAR

The war emergency brought a great increase in the number of farmers, farm women, and boys and girls instructed by county agents of the United States Department of Agriculture and the State Agricultural College in problems of greater food production and conservation.

According to reports of the Office of Extension Work South of the States Relations Service, 303,723 farmers in the Southern States were reached during 1917 with definite demonstrations in the growing of crops, raising and feeding of live stock, marketing, and other problems. The number of acres covered by the crop demonstrations alone in 1917 was 2,857,485. In addition to these, a conservative estimate of the number of farms directly reached by the county agents in 1917 is 1,650,000. The figures represent about 60 per cent of all farms in the South.

Agents are giving advice and help in one way or another to nearly everyone with whom they come in contact, and the direct and indirect influence of the county agents' work and the proportion of the farmers reached is thought to be much higher than the figures given.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces open competitive examinations for associate chemist and junior chemist, for both men and women. Vacancies in the Federal classified service in Washington, D. C., or elsewhere in the United States will be filled from these examinations. Associate chemist, salary, $1,800 to $2,500 a year; junior chemist, salary, $1,200 to $1,440. Applicants should at once apply for application form, stating the title of the examination desired.

Forest pathologist (male), salary, $1,800 to $2,040 a year. Several vacancies in the Bureau of Plant Industry, Department of Agriculture, for duty at Washington, D. C., and in the field. Date of examination, July 23, 1918. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Custer County, Mont., Organizes For Effective Food Production

Secretary Houston has received this message from J. J. Shambaugh, president of the Custer County Farm Bureau, Miles City, Mont.:

"The Custer County Farm and Stock Bureau completed organization to-day. Resolutions adopted pledging best efforts for organized food production and conservation and fullest cooperation with the Government in the prosecution of the war.

To this Clarence Ousley, Acting Secretary, replied as follows:

"I congratulate your farmers on the organization of a farm bureau. Please convey to them the gratification of the Department of Agriculture at this patriotic action and at their expression of organized support in food production."

As recently as 1906 there were only 100,000 motor vehicles in the United States compared with nearly 5,000,000 of 1917, while in 1904 the total outlay in money and labor on the public roads aggregated only $80,000,000, compared with some $300,000,000 for 1917. Thus the public roads have been changed with bewildering rapidity from the status of the purely local utility to that of a utility of national importance and scope.

Chickens are great destroyers of insects, including many injurious forms, in yard, pasture, and orchards. They destroy useless grasses and weeds also.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Men Teach Home Canning.

In addition to the 600 men leaders of boys' and girls' club work in the North and West, there are as many county agricultural agents who have learned to demonstrate canning effectively throughout their counties. Many of these have become expert canners. In several instances county agents have been offered positions in commercial food concerns to supervise and direct the work of food conservation.

More Than 2,400,000 Boys and Girls Produced Food.

More than 2,400,000 boys and girls were reached through club work last year, according to a compilation recently made by the United States Department of Agriculture, which supervises this work in cooperation with the State agricultural colleges. Of this number approximately 350,000 made complete reports, which show that they produced and conserved products amounting to $10,000,000. In the 33 Northern and Western States 840,606 boys and girls were enrolled. Of this number 160,625 made complete reports and produced and conserved products valued at $3,700,000. In the South there were 115,745 boys enrolled in the regular work, who produced products valued at $4,500,000, and 73,306 girls who produced and conserved products valued at $1,500,000. In the emergency club work in the South the club leaders reached over 400,000 boys and approximately 1,000,000 girls who produced and conserved products valued at more than $4,000,000.

Government Exhibits to Travel Together.

The Joint Committee on Government Exhibits, representing the Departments of Agriculture, War, Navy, Interior, and Commerce, the Food Administration, and the Committee on Public Information, has adopted tentative itineraries for the display of exhibits representing the war-time and other activities of the various Federal agencies named. It is planned to divide the country into five circuits of larger fairs and expositions and it is hoped to cover each circuit with two baggage cars loaded with exhibits in August, September, October, and November. The Department of Agriculture exhibits illustrate the nature of its work and the results achieved. They are all educational in character, and spectacular displays or those of purely technical interest are rarely used. The exhibits illustrate work of the Weather Bureau, Bureau of Animal Industry, Bureau of Plant Industry, Forest Service, Bureau of Chemistry, Bureau of Soils, States Relations Service, Bureau of Entomology, Bureau of Biological Survey, Office of Public Roads and Rural Engineering, and Bureau of Markets.

Fair Premiums in War-Savings Stamps.

Nearly half of the premiums to be awarded by the 1918 Kentucky State Fair will be paid in War-Savings Stamps, according to information received by the Department of Agriculture from authorities of the State Board of Agriculture of Kentucky. The price list for the 1918 fair totals $78,000, of which it is estimated that $35,000 will be paid in War-Savings Stamps.

Campaigns Against Rats.

To reduce the $200,000,000 loss in food and other property destroyed annually by rats, the Bureau of Biological Survey of the United States Department of Agriculture is giving advice as well as assistance in a number of States and local campaigns against this worst of pests. State-wide campaigns are in progress in Mississippi, West Virginia, and Georgia, while Maryland, Minnesota, and Alabama are planning to take up such work in a few weeks. These campaigns are usually made through county agents and emergency workers, by cooperation with the States Relations Service. The Board of Health of Kansas has been making a State wide educational campaign against rats, while many local organizations in cities, villages, and rural communities have been engaged in active efforts to eliminate these animals. An indication of the increasing interest taken by the public in this work is shown in the steadily increasing demand for antirat bulletins and posters published by the department.

More Than 500 Extension Workers Added.

During May 515 extension workers were added to the force now aiding the Department of Agriculture in its food production and conservation program. This brings the total number of workers to 6,166, an increase of over 4,000 doing similar work on July 1 of last year. Most of the additions made in May were in emergency work. In this classification there were on June 1, 2,129 county agents, 1,500 home-demonstration agents, and 951 boys' and girls' club workers, making a total in the emergency work alone of 4,580 compared with 4,038 in the work on May 1.

Lumber Camps to Conserve Food.

Four thousand lumbermen in Montana will be reached in a food-conservation campaign this summer. The home-demonstration agent of Flathead County, working under the United States Department of Agriculture and the State agricultural college, is cooperating with the man employed by the camps to teach conservation to the cooks. A food-saving program has been planned, with which this special demonstrator will reach every camp in the State.

Sunflowers for Silage.

Experiments with sunflowers to determine their suitability for silage are being conducted in the western United States by the Bureau of Plant Industry, in cooperation with State experiment stations. There are indications that this crop may be specially useful in regions where the growing season is too cool for the production of large yields of silage corn. The experiments were begun in 1917 at Huntley, Mont., and Scottsbluff, Nebr., and the first year's results led the investigators to extend the work to other points this year. In 1917 the yields of sunflower silage exceeded those of corn silage in the same fields from 50 to 100 per cent. Yields of more than 20 tons per acre were obtained under irrigation. Preliminary feeding tests have indicated that the sunflower silage may be substituted satisfactorily for corn silage, but directly comparable results have not yet been obtained in sufficient volume to justify a full statement as to the comparative values of the two feeds.

HOW SOME FARMERS GET HELP.

In every agricultural district there are farmers who have succeeded in holding their employees in spite of all the attractions offered by other industries. These farmers have usually employed married men and have furnished them with a small but comfortable house. Moreover, the laborers have enjoyed the privilege of raising a small garden and a few pigs and chickens.—Clarence Ousley, Assistant Secretary of Agriculture.

Extends City Market Service.

Local officers of the city market service of the Bureau of Markets have been opened in Chicago, St. Louis, Bridgeport, and New Haven, Conn., and Worcester, Mass., to report the local markets for housewives and growers. Two kinds of reports are issued from these officers—one for the local consumers which is distributed through the local press, and one for near-by truck growers put out in mimeographed form. The local market reporting service is now established in 11 cities. The office at St. Paul has been reopened for the season of local production.

National Food Survey July 1.

The third National War Emergency Food Survey will be taken as of July 1, 1918, of stocks of food in hands of dealers and manufacturers. Some 600,000 blank schedules are being sent out by mail and it is expected that they will be in the hands of the reporting concerns by July 1. Completed schedules are to be mailed to the Chief of the Bureau of Markets within three days after they are received.

Tells How to Provide Farm Bins for Wheat.

Farmers in sections where the acreage of wheat is unusually large are urged by the Department of Agriculture to provide enough bins on the farm to take care of their wheat when thrashed. This is said to be necessary to save the wheat that will probably pile up in certain localities, because the large crop is likely to put a heavy strain on storage elevators and transportation systems. The wheat should be stored in bins on the farm, according to the Bureau of Markets, which has issued a circular containing plans and drawings for a portable bin that can be quickly built. Copies of this circular have been distributed to county agents throughout the large wheat-producing sections.

Freeing Herds of Tuberculosis.

One hundred and seventy-one herds, representing 6,250 cattle, were qualified June 1 for the accredited list of pure-bred herds of cattle free from tuberculosis which the Department of Agriculture is developing to insure disease-free sources of pure-bred stocks. In order to have his herd accredited the owner must comply with uniform rules approved by the United States Department of Agriculture and adopted by nearly all of the States, which require that every animal pass at least two successful annual tuberculin tests. In addition to the number of herds mentioned, more than 600 others have passed one successful test in preparation for accrediting. One of the many advantages of having accredited herds, which is proving popular with breeders, is that the owner may make interstate shipments of animals accompanied by a certificate at any time within one year without subjecting the animals to further tuberculin tests.

Labor-Saving Wheat Harvester to be Used in Northwest.

One thousand improved wheat-harvesting machines, known as combines, will be used in Washington State and other States of the Northwest this year, according to farm-help specialists of the United States Department of Agriculture, and will effect a great saving in labor. These machines, which cut the heads from wheat and thrash the grain as they travel across the field, can be operated by two persons, and each machine will harvest from 350 to 400 acres of wheat during a season. They are marked labor savers over the old type combine which required from 15 to 20 men.

Potato Campaign Increases Sales and Lowers Prices.

A recent week's potato campaign conducted in Pocatello, Idaho, under the supervision of the county home-demonstration agent of the Department of Agriculture and the State Agricultural College, resulted in large increased consumption of potatoes. All grocers reported a great increase in potato sales throughout the week, one reporting 10,000 pounds increase, another 8,000 pounds, and a third 1,500 pounds. Competition was so great that the price was reduced from $1 a hundred pounds at the beginning of the week to 65 cents at the close.

Firemen Help Home-Demonstration Agent Sell Milk.

Three successful milk depots have been established at fire stations in New Haven, Conn., by the city home-demonstration agent of the Department of Agriculture and the State Agricultural College. The fire stations make clean, central places where plenty of volunteer help is available for handling the milk. Bottled skim milk from two large dairies outside the city is sold at 5 cents a quart. The stations are open during the noon hour, with two women volunteers on duty at each one to superintend the sales. Children stop for the milk on their way home from school. The firemen cooperate in every way. They take full charge of setting up the temporary counters and lifting the heavy crates of bottles, as well as in keeping the children in line and helping with the sales.

Girls and Women to Harvest Fruit.

More than 1,000 girls in Oregon cities have been interested in light farm work by farm-help specialists of the United States Department of Agriculture, and are now being placed in the fruit districts of the State to assist in picking berries and fruit. In some cases these girls and women receive training in grading and packing fruit and have shown that they are more efficient helpers in this line of work than men. Many of the growers are providing tents as quarters for the women.

Women Produce Sugar and Starch at Home.

Women in Uinta County, Utah, are going to make sugar at home. The great interest taken in sugar-beet production for sirups by the women of that county has led to the planting of from 75 to 100 pounds of sugar-beet seed. This is the direct result of the work of the county home-demonstration agent, who has demonstrated the use and making of the sirup to each of the fifteen organizations in the county with whom she works. The women have also made between 2,000 and 2,500 pounds of potato starch, averaging 25 pounds to 4 bushels of potatoes. This means the saving of 400 bushels of potatoes that otherwise would have been wasted.

Farm-Labor Meeting in Portland.

Means of securing helpers to harvest the wheat and fruit crops in the Northwestern States have been worked out at a meeting in Portland, Oreg., which was the second of a series of farm-labor meetings called by the United States Department of Agriculture. The meeting was attended by representatives of the State Councils of Defense, State Departments of Labor, and various city organizations. Prof. G. I. Christie, Assistant to the Secretary, and Dr. E. V. Wilcox, of the Office of Farm Management, were the representatives of the Department of Agriculture. Plans were made whereby city organizations will secure lists of city residents who have had farm experience and who are willing to devote at least a part of their vacations to farm labor when they are needed. The "fight or work" program is being carried out in the Northwest. Pool rooms have been closed and all idlers and persons doing unimportant work are being set at useful occupations, thus relieving the labor situation both in cities and rural districts.

OUR ALLIES AND OUR DUTIES.

Let us always remember and embrace every occasion to acknowledge our debt to our Allies, who have held back the tide that threatened to engulf us with them while we were unaware of our danger and prospered while they bled. Let us ever walk humbly before splendid, unconquerable France, grim and uncomplaining Britain, valiant and suffering Italy, and let us stand uncovered in the presence of poor, ruined Belgium, the bravest of all the sons and daughters of men, who grappled the beast with her bare hands and held him a brief moment until the hosts of defense could be assembled. And through all the dark days and years to come let us keep our bodies strong, our minds clear, our hearts pure, so that when we have finished the horrid butcher business we can wash the blood from our hands and leave no stain upon them, brush our garments and leave no smoke of battle upon them, and present our souls to our God unblushing and unashamed. In this spirit let us go to each daily task, however hard it may be; in this spirit let us rally for war as for a holiday, for the day of victory will be indeed the holy day of the world's redemption.—From address by Clarence Ousley, Assistant Secretary of Agriculture.

Thrash the Wheat Odds and Ends— Make Clean Sweep Around Separator

Probably more grain is wasted at thrashing time from failure to clean up at the end of a setting than from any other single cause. Just as much care should be taken in cleaning up all the unthrashed straw and loose grain that has accumulated around the machine as is taken with the rest of the job. Even with the best of care a considerable amount of unthrashed straw will accumulate around the feeder in the course of a day's work. If the straw is very dry, considerable grain will shatter from the heads as it is being pitched from the wagons or stacks on to the feeder. Small piles of chaff and straw which contain a certain amount of grain will accumulate at various other places around the machine, and the machine should not be stopped at the end of the job until all this is pitched into the cylinder and carefully rethrashed.

Of course, the careless thrasherman or farmer may say that the chickens or pigs will clean up whatever is left in this manner, but practically it is a total loss, and any machine which is operated carelessly in this respect wastes a large amount of grain in a single season. Write to the United States Department of Agriculture for copies of Farmers' Bulletin 991, "The Efficient Operation of Thrashing Machines."

BLACK WALNUT IN DEMAND FOR GUNS AND AIRPLANES

(*Continued from page 1.*)

Actuated by patriotism, some farmers have sold walnut at low prices to persons representing themselves as purchasers for the Government, who have then resold to the manufacturers at a large profit for themselves. Buyers should be required to show their credentials before a sale is made. If advised of the name and address of persons making false claims and threatening to force people to sell their walnut, the Government is in a position to investigate the cases and take action.

A carload of walnut logs usually contains from 3,000 to 5,000 board feet, log scale. In the central Mississippi River basin, carloads are made up usually of from 18 to 25 logs, but farther east where the walnut trees average smaller, from 35 to 50 are loaded on a car.

What Is Marketable.

Logs are wanted 12 inches and over in diameter at the small end and 8, 10, 12, etc., feet in length. A few logs 10 inches in diameter and 5 feet in length will be accepted in order to avoid wasting useful parts of the tree. Trees cutting less than a 10-foot log 12 inches in diameter lose much in scaling and should be cut sparingly and only to fill out an order. No cutting should be done by owners without having entered into a written contract with one of the firms working on Government orders, or without having a distinct understanding as to specifications and prices.

Basis of Log Prices.

Prices for logs vary widely, being based chiefly on clearness, diameter at the small end, and cost of transportation to the manufacturing plant. Logs sometimes run in three diameter groups, namely, 12 to 18 inches, inclusive, 19 to 23 inches, and 24 inches and over, and are purchased on the basis of these diameter groups. The prices paid at loading points for reasonably clear walnut logs, that will cut airplane propeller and gunstock material, have in a number of cases averaged around $80 to $90 per thousand feet, depending on the average grade of the logs. The value on the stump is determined by the value at the loading point minus the cost of logging and a reasonable profit on the operation.

Best Grades for Airplane Propellers.

Gunstocks are made from planks or "flitches" sawed from second-grade logs and the less desirable portions of better logs. Airplane propellers demand the very best grades of clear walnut lumber. Logs 16 inches and up in diameter at the small end and 10 feet and over in length, suitable for airplane propeller stock, are especially needed by the firms upon which the Government is dependent for this important war material.

Set the Thrashing Machine Level; Save Bearings and Thrash Better

It is essential in placing a separator for thrashing to get it level, says Farmers' Bulletin 991, "The Efficient Operation of Thrashing Machines," just issued by the United States Department of Agriculture. The thrasherman should not guess, but should have a good spirit level and use it at every setting. A slight difference in level between the two sides of the separator will make the shafts run against the bearings on the lower side and have a tendency to heat them. That may mean the ignition of dust, an explosion, and a fire. It will also cause the grain constantly to work toward the low side of the separator and make it more difficult for the cleaning mechanism to do good work.

If the machine is set on soft ground one or two of the wheels may sink further into the ground than the others. Even if the machine is set on a barn floor it should be leveled carefully, for barn floors are rarely precisely level, and the weight of the separator may make it sag in weak places.

MANY FARMERS REACHED BY COUNTY AGENTS IN SOUTH

The war emergency brought a great increase in the number of farmers, farm women, and boys and girls instructed by county agents of the United States Department of Agriculture and the State agricultural colleges in problems of greater food production and conservation.

According to reports to the Office of Extension Work South, of the States Relations Service, 303,723 farmers in the Southern States were reached during 1917 with definite demonstrations in the growing of crops, raising and feeding of live stock, marketing and other problems. The number of acres covered by the crop demonstrations alone in 1917 was 2,857,485. In addition to these a conservative estimate of the number of farms directly reached by the county agents in 1917 is 1,650,000. The figures represent about 60 per cent of all farms in the South.

Agents are giving advice and help in one way or another to nearly everyone with whom they come in contact, and the direct and indirect influence of the county-agents' work and the proportion of the farmers reached is thought to be much higher than the figures given.

Chickens far surpass all other kinds of poultry in salvaging wheat grain from the stables, from the shed or lot where the cattle are fed, and from hogpens.

HOW TO ADJUST GANG PLOWS

The depth of the furrow made by sulky or gang plows can be regulated by raising or lowering the bottom in relation to the frame. The width of the furrow is regulated by adjusting the hitch to or from land on the frame and also to some extent by adjusting the front furrow wheel.

In any wheel plow the load should be carried on the wheels as much as possible to reduce the draft. This may be tested while the plow is operating by taking hold of the frame at the front wheel and sliding it sidewise, and then doing the same at the rear furrow wheel. If equal resistance to side motion is encountered, it is reasonable to assume that all the load is carried on the wheels. If the load is not equally balanced it may be remedied by raising the point of the hitch or lengthening the traces.

White Grub Injury Anticipated— Crops to Plant, in Damaged Fields

In the white grub areas in northeastern Iowa, southern Wisconsin, northern Illinois, southern Michigan, northern Ohio, Pennsylvania, southeastern New York, and Connecticut, more or less timothy, blue grass, and small grain areas have been planted to corn. Recent examinations by agents of the Bureau of Entomology indicate that injury may be anticipated in these areas. Farmers are urged to keep careful watch of corn planted on ground likely to contain grubs for the first appearance of injury and be prepared to replant injured areas with a profitable crop. Injury will likely become evident by the last of June, particularly if moderately dry conditions prevail and at latest, injury should be apparent by early July. Control measures for grubs are given on page 12 of this issue.

Crops which have been suggested as possible for late-season plantings by specialists of the Bureau of Plant Industry and the agronomists of the various experiment stations in the infested districts are as follows, listed in order of preference: Millet, buckwheat, sorghum, soy beans, navy beans, sudan grass, fall rye, rape, late cabbage, ensilage corn, turnips, and rutabagas. The least likely to be injured by grubs are millet, buckwheat, fall rye, rape, possibly ensilage corn, and the root crops.

Millet.

This crop and buckwheat were the two crops agreed to by all authorities as useful late crops. Millet may be planted until the middle or latter part of July satisfactorily and there seems to be a plentiful available supply of seed.

Buckwheat.

Buckwheat is another safe crop and can be planted till the middle of July, but there appears not to be an oversupply of seed.

With the present prices buckwheat is a profitable crop, requires little attention, and is well suited for the areas where white grub injury occurs. It is also an excellent honey crop and in sections where beekeeping is practiced it will prove of appreciable value in the production of honey.

Sorghum.

An excellent crop which can be planted as late as early July as a hay crop or to be used in the silo, and under certain conditions may mature for use in producing molasses. However, the sorghum seed available is of rather uncertain germination and the supply is limited.

Soy beans.

Early July will probably be late to plant soy beans for a seed crop, but they make an excellent hay crop, and are especially valuable if planted with corn when ground is to be pastured with sheep or hogs. This combination makes an excellent hog ration and in addition hogs will root up and destroy the white grubs in the field. The available supply of seed seems to be sufficient.

Navy beans.

Beans may be planted to advantage the 1st of July and are a profitable and desirable crop for certain soils. The supply of seed probably will be sufficient.

Sudan grass.

An excellent hay crop can be obtained by planting this crop at any time up to the 1st of July, using 10 pounds of seed to the acre, and the seed is obtainable from most of the seed companies.

Fall rye.

Fall rye can be sowed during August or he first week in September and makes finet fall and winter pasture. The rye can also be used for early spring pasture, seeded with clover if desired, and a rye crop harvested. Seed will be available where needed.

Rape.

A good emergency crop and an excellent forage for sheep and hogs alike and can be sowed up to the 1st of August. There is a sufficient supply of seed.

Ensilage corn.

A quick-growing ensilage corn can be used where fodder is needed. Most of the seed companies can furnish fairly good seed.

Root crops.

Root crops, such as turnips, rutabagas, and mangels, are useful under certain conditions and make good feed. When planted in rows they require much labor, but they can be planted broadcast or drilled and will make good sheep forage.

CITY'S INFLUENCE ON TYPE OF FARMING IN ITS ENVIRONS

Truck farming and market gardening tend to occupy land adjacent to cities, and this tendency is usually attributed altogether to the fact that the city offers an easily available market for garden produce. That this is not the only reason, however, is brought out in a study of farming in the environs of Louisville, Ky., the results of which have just been published by the Department of Agriculture in a bulletin entitled "Influence of a City on Farming." High land values, as well as handy market, were found to be an important factor in determining the type of farming followed in this suburban area.

It is shown that farmers near Louisville who were making good interest on their investments at the time of the survey (1915) were those who had adapted themselves to the conditions created by their proximity to the city. The big farm, more or less diversified, generally the safest type where normal farm values prevail, was found to be wholly out of place near the city. Thus 21 farms of over 300 acres averaged only 4 per cent interest on capital invested, while 21 farms of under 80 acres averaged 7 per cent. None but the most intensive types of farming were found to be profitable where the market value of land was greatly affected by present or prospective demand for city building sites.

Of all the farms studied in this locality those of the general-mixed type were the least profitable and the potato-truck type of farm the most profitable. Dairy farms ranked second.

Labor Secured for Beet Fields of Michigan by Department Workers

Through the farm labor organization of the United States Department of Agriculture sufficient emergency labor has been secured recently for the sugar beet fields of Michigan. Thousand of acres were in such need of laborers that it was reported to the Department's farm help specialist in Michigan several weeks ago that these crops would be lost unless help was secured at once. The State specialist lined up a considerable number of men and boys from towns and cities, who, by reason of the department's campaign for volunteer farm workers, were available for just such an emergency call. In addition to these workers, 760 Mexican laborers were brought in, and in this way the sugar-beet crop in Michigan was saved.

THE GOVERNMENT AND FARM LABOR.

No department of Government has any authority under the law to seize labor nor can the Government create labor. The best we can do is to study each situation and to furnish information and every possible assistance in shifting labor from one neighborhood or region to another, and if that is not possible in a given case to call upon the towns and cities dependent upon agriculture to mobilize all town men of farm experience for aid to farmers, if need be, by substituting women in stores and shops in order to relieve the temporary emergency.—Clarence Ousley, Assistant Secretary of Agriculture.

War Labor Policies Board Outlines Plans for Recruiting Farm Labor

The newly organized War Labor Policies Board, on which the Department of Agriculture is represented, has outlined plans for recruiting of industrial and agricultural labor. These plans have the appreval and support of the President.

The following is from the report of the War Labor Policies Board and outlines the medium through which recruiting work should be carried on.

"All recruiting of industrial labor for public or private work connected with the war should be conducted through or in accordance with methods authorized by one agency. This should be the United States Employment Service. The present working agreement between the Departments of Labor and Agriculture relating to recruiting of farm labor should remain in effect."

The agreement between the Department of Agriculture and the Department of Labor to which the resolution refers provides:

1. That the Department of Agriculture, through its cooperative organization with the respective State agricultural institutions, and in cooperation with such other State agencies as may be created for the purpose, will (1) undertake to ascertain from individual farmers the kinds and amount of labor needed in addition to that now available, the date and duration of employment offered to such additional labor, and the wages to be paid; (2) list available labor in rural and village communities and in schools; (3) notify the Department of Labor of the needs for labor that can not be supplied from the above-mentioned sources, giving due notice as far in advance as possible of the exact number of laborers needed in each locality, the kind of labor to be performed, the wages to be paid, the date and duration of employment, and the points at which and the persons to whom labor supplied by the Department of Labor should report; and (4) render all possible assistance in the distribution, employment, and care of the labor supplied by the Department of Labor.

2. That the Department of Labor will use its best endeavors to supply such numbers of farm laborers upon the request of the Department of Agriculture as such department's investigations may reveal to be needed in the various localities of the United States and which is not obtainable from the sources mentioned in the preceding paragraph, as nearly as possible at such times and places as the investigations of the Department of Agriculture may show to be necessary.

3. That in the matter of transporting laborers to and from various parts of the country each party to this memorandum of understanding will give such attention as may be required to the transportation of the labor made available by its own activities, but that each party will render to the other all possible assistance in this and all other matters pertaining to this cooperative undertaking.

How County and Home Demonstration Agents Are Helping Win War

The county agents and home demonstration workers employed in the Southern States are not only instructing farmers and farm women in food production and conservation but are assisting in other essential war work. They are not only working for the Department of Agriculture but are assisting the Food Administration, the Treasury Department, the War Department, the Navy Department, the Department of Justice, and the Department of Labor.

They have taken part, in addition to their regular activities, in such work as food surveys, seed surveys, seed distribution, obtaining credit for farmers, selling Liberty bonds, eradication of live-stock diseases, surveys of live-stock diseases, surveys of insect pests and campaigns for their destruction, marketing farm products, preferential or priority shipments by rail of farm products and all farm supplies, and dissemination of information given out by the War Department, the Council of National Defense, and the Committee on Public Information regarding the war and other matters affecting the national policy under war conditions.

HOW WHITTLING SAVED FOOD.

Demonstrations of food drying spread last year over Kentucky as a part of the national food saving work, and in that State 1,800 homemade driers were constructed. Here is one reason:

The home demonstration agents preached the need for drying so earnestly that many men who had been whittling on street corners to while away the time became interested. They whittled for a purpose and made homemade driers.

In Kentucky alone 306,000 pounds of dried products were saved last year.

BORDEAUX SPRAY EFFECTIVE IN CONTROL OF MELON DISEASES

Thorough Application of this Mixture Means More and Better Watermelons

Department Specialists Suggest Care in Making and Using Preparation, Apparatus and Methods Employed, and Number of Applications

Thorough application of Bordeaux mixture will prevent the spread of anthracnose, downy mildew, and a new disease of watermelons known as Mycosphaerella blight, according to specialists of the United States Department of Agriculture. The control of these diseases means an increased yield and a better quality of fruit.

Great care should be taken to follow directions in making the mixture. Use the correct amounts of bluestone and lime, as a variation may ruin the vines. Be certain that the lime has not air-slaked. Directions for making Bordeaux mixture may be found in the United States Department of Agriculture's Farmers' Bulletin 821, Watermelon Diseases, free on request.

Apparatus and Method.

Any spray pump which will furnish a pressure of 140 to 200 pounds may be employed. A light gasoline power outfit is strongly recommended. In general, the farmer will have to devise a method of application suitable to the outfit available. Where rows are planted 10 feet apart it has been found convenient by using two 25-foot lengths of hose with 6-foot extensions to spray three rows of vines on each side of the machine. A valve cut-off should be provided at the hose end of the extension rod. The nozzle should throw a finely divided mist, and be set at an angle to the rod in order to facilitate covering the under surface of the leaves. If the pump will support a pressure of 140 pounds when four nozzles are in use, a Y connection and two nozzles for each extension afford an effective means of applying the spray.

Experience has shown that the field roads used at harvest time may be advantageously kept open during the growing season for passage of the spray machine. Boys may be employed to support the hose and prevent dragging of the vines. Rough treatment will knock off blossoms and small fruit, thereby reducing the yield.

Dates and Number of Applications.

As the occurrence of the diseases is largely dependent on time and amount of rainfall, it is difficult to recommend a set schedule for spraying melons. For average conditions, three applications are suggested. Spray for

(*Continued on page 11.*)

Indianians Go to the Harvest Fields—Every Town Organized to Get Workers

Every town in Indiana is organized for supplying emergency farm workers during the harvest, or other seasons of especial farm help needs this summer. In many of the towns iron-clad agreements have been made by all the business men to shut up shop absolutely during the harvest—to close every commercial establishment for the time, cease every town activity save a few indispensable functions—so men, women, and children may go to the fields and save war crops.

These facts are reported to the United States Department of Agriculture by its field representatives in charge of farm-labor activities in Indiana. The same general statement is true of Illinois.

In Evansville, Ind., the mayor headed the first delegation of town men who went to the harvest fields a few weeks ago. All the members of the board of public works (the governing body of the municipality, corresponding to the board of commissioners or board of aldermen of some cities) went, too, and they were followed by most of the leading business and professional men of the place.

Connersville, Ind., has pledged every able-bodied man in the town, without a single exception, for farm work, and every business house closed when the wheat harvest began a short time ago.

At Notre Dame University at South Bend the priests are in the fields, harvesting the crop on the university farm.

These are scattered instances. The same sort of reports are coming to the United States Department of Agriculture from all parts of Indiana, and from many other States. Such is the spirit America is putting into its war program.

BORDEAUX SPRAY EFFECTIVE IN CONTROL OF MELON DISEASES

(*Continued from page 10.*)

the first time when the plants have been out of the ground about two weeks. A hand pump of the knapsack type is most convenient for this application. The second spraying may be given when the plants have developed a good system of runners. The third spraying should be given about two weeks before maturity. If rainfall is heavy and disease prevalent, an additional spray should be given 7 to 10 days later.

Such a schedule merely suggests a set of applications that might be effective in an average season. In case dry weather prevails during the growing season, the second application may be delayed until two weeks before maturity. If rains are frequent at this time, make another application in about 7 to 10 days. Instances have been known where spraying would have paid even though the loading season was well under way. Heavy rains and continued moist weather at any time during the season should be the signal for the application of Bordeaux mixture. If possible, the application should be made a sufficient length of time before a rain to allow the mixture to dry thoroughly on the leaves. The best time to spray is in the morning on a bright, sunny day.

Careless Work Useless.

Owing to the method of doing the work, much spraying done on the farm accomplishes little more than a waste of time and material. Half-way measures are useless in spray work. As a rule the work is left to gnorant laborers, who proceed with the object of covering as large an acreage as possible in a limited amount of time. A portion of each plant may be sprinkled under these circumstances, but this is not sufficient Spraying that will control fungous diseases means more than that. The spray solution acts only as a preventive, and the ideal application is one in which every leaf of the plant is covered, top and bottom, with a finely divided mist. Unless this is done, disease may get a foothold in the field, and the possibility of control will be doubtful.

Spraying Cost Compared to Returns.

In a spraying demonstration on a 24-acre field in Georgia in 1917, the total cost for each application was found to be 94 cents an acre. Yield records kept in connection with a spraying experiment in the same locality in 1917 showed that the difference in returns from a thoroughly sprayed plat and a near-by unsprayed plat amounted to $19.50 an acre. After deducting the cost of three applications, $2.82, the profit derived from spraying in this instance amounted to $16.68 an acre.

BOYS IN SOUTHERN CLUBS MAKE GOOD RECORD IN FOOD PRODUCTION

Farm products valued at $4,486,921.60 were produced in the South last year by 115,745 boys enrolled in club work. These facts have just been compiled by the United States Department of Agriculture from reports of the State leaders of club work. In addition to the regular club members it is estimated that 400,000 boys were reached and helped in food and feed production through instruction given by agents in schools and community clubs and through demonstrations. Negro boys in Farm Makers' Clubs produced $61,077.30 worth of farm products.

The variety of products produced by the club members is ample proof that the South can feed itself, say officials of the department. The boys last year produced 1,135,516 bushels of corn, valued at nearly $2,000,000, and 2,437,970 pounds of pork, valued at nearly $400,000. In addition to pork produced, they also raised and have on hand 37,101 pure-bred hogs for breeding purposes, valued at more than $750,000. The boys in the poultry clubs raised 135,667 chickens, valued at a little more than $100,000. The boys who took part in the potato clubs raised nearly 68,000 bushels of potatoes, valued at $125,000. More than 100,000 bushels of peanuts were raised by the club members, valued at more than $188,000. Grain sorghum, wheat, oats, peas, beans, hay, cotton, were also raised by the club members in addition to beef cattle, dairy calves, and sheep.

Beginners in the poultry business will probably make many mistakes and difficult problems will be presented for solution before success in any large measure will be attained. As soon as it is found to be a paying investment, more capital may be put into the plant.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended June 22, 1918:

Forest Disease Surveys. Department Bulletin 658.

Car-Lot Shipments of Fruits and Vegetables in the United States in 1916. Department Bulletin 667.

Standard Broom Corn. Farmers' Bulletin 958.

Farm and Home Drying of Fruits and Vegetables. Farmers' Bulletin 984.

Breeding Horses for the United States Army. Yearbook Separate 754.

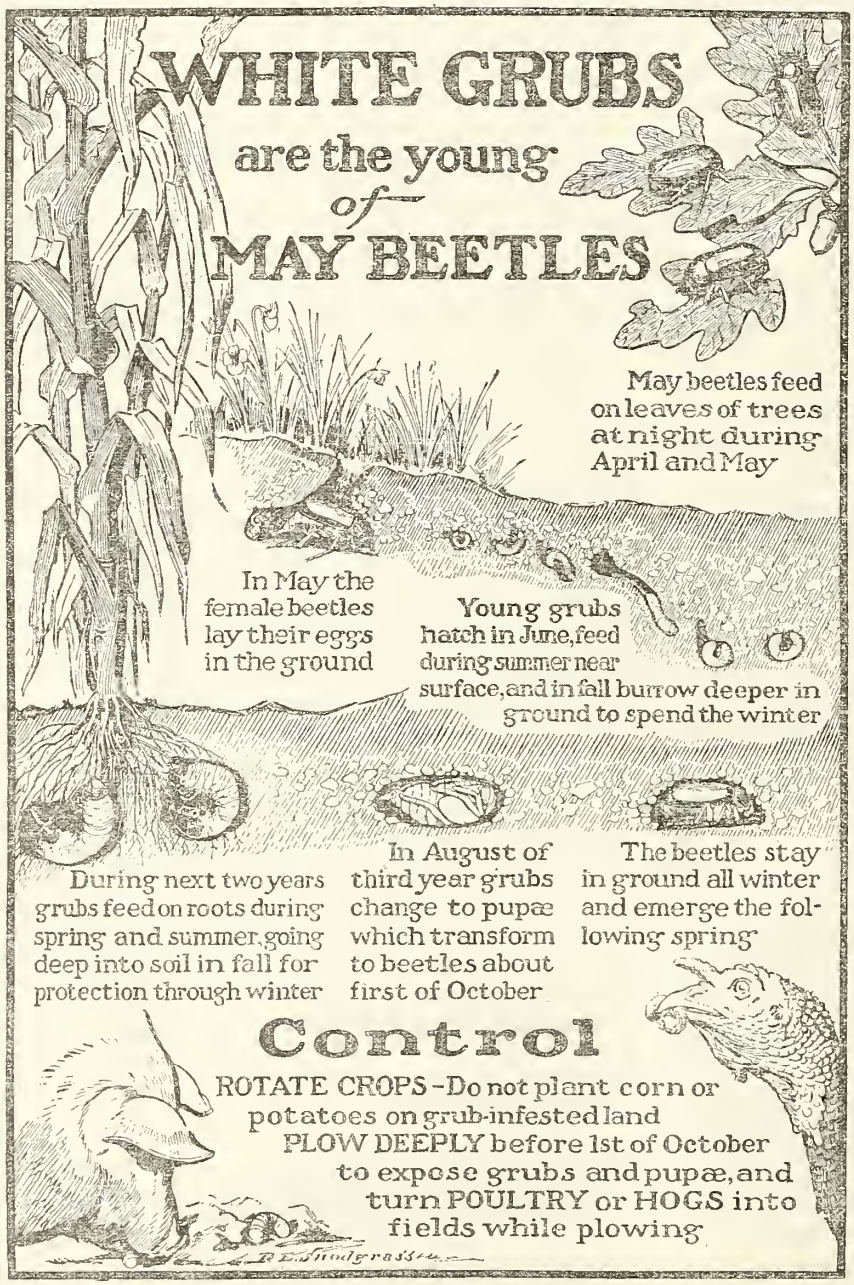
Cereal Diseases and the National Food Supply. Yearbook Separate 755.

The Control of Tomato Leaf-Spot; Prevent the Disease by Spraying. Office of Cotton, Truck, and Forage Crop Diseases Circular 4.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

How to Control White Grubs

WHITE grubs, the young of May beetles, are capable of devastating, and frequently destroy, large acreages of farm crops by eating the roots and underground portions. They attack timothy, strawberries, beans, potatoes, and conifer seedlings. There are no authentic records of injury to such crops as alfalfa and clover, and from all observations small grains are not seriosly injured. May beetles eat the leaves of oak, ash, hickory, poplar, elm, willow, locust, hackberry, walnut, and other trees, and when abundant completely strip large tracts of timber. The beetles deposit their eggs in ground covered with vegetation near timber, usually in fields of timothy or bluegrass sod or small-grain crops. A heavy flight of beetles one year indicates that such ground will be heavily infested with grubs the following year.



It should be remembered that injury from white grubs, as well as from many other pests of farm crops, can be prevented by correct farm practice, but that after corn or any field crop has become infested with grubs there is no practical known means of preventing further injury to that particular crop. There are, however, certain cultural and farm practices which greatly reduce the damage to succeeding crops.

A THOROUGH pasturing by hogs will practically eradicate grubs. During the flight of the beetles pasture hogs in timber lots or adjoining fields to destroy the beetles. In the fall of the same year pasture hogs in small-grain stubble, timothy, bluegrass, or weedy lands, where the beetles have deposited their eggs and young grubs are to be found. "Hogging" down corn is profitable, and is especially so if the ground contains grubs.

Crop rotations are especially important in avoiding white-grub injury. A rotation of oats or barley, clover, and corn has proved satisfactory. Land which is in small grains, timothy, or covered with weeds during the flight of the beetles will contain many grubs, as the beetles prefer such land for laying their eggs. Plant such land to clover the following year, as clover is least susceptible to grub injury. Plant corn on corn ground the year following the beetles' flight.

Deep plowing of infested land before the 1st of of October, as a rule, will destroy many grubs. Turn hogs and poultry into the fields when plowing, harrowing, or cultivating.

Write to the Division of Publications, U. S. Department of Agriculture for Farmers' Bulletin 940, "Common White Grubs," for further control measures.

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. V JULY 10, 1918 No. 49

WAR POLICY IN ROAD BUILDING STATED BY SECRETARY HOUSTON

Government Realizes Vital Military and Economic Importance of Highways

Agriculture Head, in Letter to Council of National Defense, Defines "Important Highways"—Duties of Highways Council—Work Under Road Act

Governmental agencies dealing with highway problems fully recognize the vital military and economic importance of the country's roads, according to a letter from Secretary of Agriculture Houston to Arthur H. Fleming, chief of the State Councils Section, Council of National Defense.

The Secretary, whose department administers the Federal aid road act, stated also that the Government recognizes that it is necessary to construct, reconstruct, or maintain roads essential for military and vital economic purposes and to defer action on roads not of this class; and that it is desirable, wherever possible, to use local materials for road building and maintenance in order to relieve railroad traffic.

Important highways, as described in the Secretary's letter, include only those utilized, or to be utilized, by the military establishment, those which carry a considerable volume of materials and supplies essential to war industries, and those which have a bearing on the production and distribution of food supplies, connecting population and shipping centers with surrounding agricultural areas.

Duties of Highways Council.

Attention is called to the formation of the United States Highways Council. This body was suggested by the Secretary to coordinate Federal agencies interested in highway problems. The council is made up of a representative each from the Department of Agriculture, the War Department, the Railroad Administration, the Fuel Administration, and the War Industries Board. It will form a unified agency for dealing, on behalf of the Federal Government, with highway construction, maintenance and policies. It will, of course, through the Office of Public Roads and Rural Engineering of the department, continue the close contact already established, both formally by law and informally by practice, with the State highway commission in each State.

The Officer of Public Roads and Rural Engineering and the Highways Council will actively consider the supply, for highway purposes, of road oils, asphalts, and other bituminous road materials controlled by the Fuel Administration, and the matter of priority production for highway materials controlled by the War Industries Board. They will also, in contact with the Railroad Administration, aid in securing, so far as practicable, facilities for the transportation of road materials and supplies. Furthermore the Office of Public Roads and Rural Engineering will act as the medium for furnishing information and assistance on highway problems, especially to State highway authorities, in meeting the various difficulties which they encounter.

Work Planned Before War.

When the United States entered the war the work of planning State highway systems, so that, as far as necessary and feasible, they would connect with the systems of other States, was well under way. This resulted from efforts to administer the Federal aid road act, so that the roads of vital importance for economic, military, and other purposes should first be dealt with. The Federal aid road act—involving an aggregate five-year expenditure directly and from State and local funds of $160,000,000 in addition to at least $200,000,000 spent independently each year by the States—provides that the States must maintain the roads, and that before any money can be expended the roads must be selected and approved and plans, specifications, and contracts submitted. It also provides that the Federal Government must inspect the construction of the roads.

War Road Policy Adopted.

Soon after the United States entered the war the Department of Agriculture requested the State highway commissions to join it in directing expenditures only on roads of prime importance for economic and military

(Continued on page 2.)

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NATION'S LUMBER CUT IN 1917 PLACED AT 35,831,239,000 FEET

Forest Service Estimate Shows Decrease of 10 Per Cent from 1916

Falling Off Due to Decreased Private Building, Labor Scarcity, Transportation Difficulties, Curtailment of Demand, and Dislocation of Distribution

A total computed lumber cut for the United States in 1917 of 35,831,239,000 feet is announced by the Forest Service. This figure is based on reports received up to May 15 from 16,408 sawmills out of the 24,815 believed to have operated last year. It is estimated that the actual cut in 1917, on the basis of compiled figures, was approximately 10 per cent less than the production in 1916.

Reasons for Decrease.

The falling off in lumber production during the past year is attributed principally to largely decreased private building operations, the scarcity of labor in connection with small operations, transportation difficulties, curtailment of demand on the part of wood-using industries, and a more or less general dislocation of lumber distribution through ordinary channels of trade. A considerable portion of the total quantity produced was utilized in meeting the exceptional demands for Government construction and other war emergency projects, including ship material.

The State of Washington was again the largest producer, with a lumber cut of 4,570,000,000 feet; Louisiana was second, with 4,210,000,000 feet; and Oregon third, with 2,585,000,000 feet, crowding into the fourth position Mississippi, with a cut of 2,425,000,000 feet.

Southern Pine 37 Per Cent of Total.

Southern yellow pine, with a total of 13,539,464,000 feet, forms 37.7 per cent of the total cut. Douglas fir, its nearest competitor, is credited with 5,585,000,000 feet. White oak and white pine are each credited with 2,250,000,000 feet.

(Continued on page 5.)

WAR POLICY IN ROAD BUILDING STATED BY SECRETARY HOUSTON

(*Continued from page 1.*)

purposes. In this undertaking, the Secretary says, the department has received the cooperation of State authorities.

The department has been actively cooperating with the Capital Issues Committee in its task of keeping out of the market road bonds the issuance of which was not urgent from the point of view of aiding the Nation in winning the war.

The Secretary also calls attention to the fact that road engineers have been provided by the department for each of the Army cantonments and for work on roads elsewhere in which military authorities were interested.

Text of Secretary Houston's Letter on War Road Policy

The Secretary's letter in full is as follows:

JUNE 10, 1918.

Mr. ARTHUR H. FLEMING,
Chief, State Councils Section,
Council of National Defense,
Washington, D. C.

DEAR MR. FLEMING: I received your letter of May 25 several days ago, but I have been so immersed in urgent legislative and other matters of a critical nature that I have not had time before this to reply. I think it would be well for me to make a rather full statement, for your information, both with reference to the agencies dealing with highway construction and maintenance and with State and Federal policies affecting the same.

As you doubtless know, the Department of Agriculture, through the Bureau of Public Roads, is charged with the duty of administering the Federal aid road act, which involves an aggregate expenditure over five years, directly and from State and local funds, of $160,000,000. In addition to this sum the States, through their highway commissions and through the counties, are supervising the expenditure of at least $200,000,000 annually. These two agencies are the official agencies throughout the Union for the supervision of the expenditure of road funds, for the planning of systems of roads, and jointly for the formulation of State and national road policies.

The Federal aid road act provides, among other things, that the States must maintain the roads constructed, and that, before any money can be expended, the roads must be selected and approved and plans, specifications, and contracts submitted. It also provides that the Federal Government must inspect the construction of the roads.

Made Definite Plans.

In our procedure at the outset we actively took up the matter of making definite plans, so that the roads of most vital importance for economic and other purposes, including military purposes, should first be dealt with, and, as a step in this direction, we suggested to each State highway authority the planning of a system of roads in each State toward the development of which we might work, which system should also be devised, so far as necessary and feasible, at connecting points, in relation to the systems of adjoining States. This work was well under way before we entered the war and is proceeding under such modifications as the circumstances have dictated.

Shortly after we entered the war it became obvious that there should be a careful consideration of plans and policies in the light not only of difficulties in the way of financial support but also of the newly developed military needs. In response to a letter from the Secretary of the Treasury this department issued a request to the State highway commissions to join it in directing expenditures only on roads which are of prime importance for economic and military purposes and it used also, in this connection, the language quoted in your letter, as follows:

"So far as it is practicable to do so this department will urge the maintenance of the highways already constructed; the construction and completion of those highways which are vitally important because of their bearings on the war situation or for the movement of commodities; the postponement of all highway construction relatively less essential or not based upon important military or economic needs.

"The department is preparing to suggest to the State highway departments the preparation of a schedule of work for the Federal aid projects for 1918 in line with this policy."

In this undertaking the department has received the cooperation of the State authorities charged with duties on behalf of the States in this field.

Cooperation with Capital Issues Committee.

Later the Capital Issues Committee was formed. It immediately sought the cooperation of this department in its consideration of highway undertakings which would involve especially the issuance of bonds. The committee desired to keep out of the market at this time securities the issuance of which was not urgent from the point of view of aiding the Nation in winning the war. The department has been actively cooperating with the committee in this direction.

Not only in connection with the erection of cantonments, but also in the development of certain roads in which the military authorities were interested, this department was called upon by the War Department to furnish assistance. It arranged to provide one of its engineers for each of the cantonments, and has furnished engineering officers for work on other roads, as indicated. Naturally, other agencies of the Federal Government were involved, especially the Railroad and Fuel Administrations and the War Industries Board. In order to coordinate the Federal agencies interested, I suggested the formation of a committee consisting of a representative from the Department of Agriculture, the War Department, the Railroad Administration, the Fuel Administration, and the War Industries Board. This committee has been constituted and will form a unified agency for dealing, on behalf of the Federal Government, with highway construction, maintenance, and policies. It will, of course, through this department, continue the close contact already established, both formally by law and informally by practice, with the State highway commission in each State of the Union.

Agencies Dealing with Road Problems.

I need not, of course, call your attention to the fact that the Highways Transport Committee was constituted by the Council of National Defense to exert itself to furnish relief to transportation, especially in congested areas, by the fuller use of motor trucks.

To summarize, the governmental agencies dealing with the highway problems fully recognize:

1. The vital military and economic importance of the highways of the country.
2. The necessity for the construction, or reconstruction, of roads essential for military and vital economic purposes and of deferring action on other roads not of this class.
3. The need of conserving, during the war especially, by suitable maintenance, of important highways, particularly those of importance for military and economic purposes.
4. The desirability of using local materials wherever possible for road building and maintenance in order to release railroad cars and engines for other purposes.

The important highways, as generally described above, would include only:

(*a*) Those which are utilized, or will be utilized, by the military establishment.

(*b*) Those which carry considerable volume of materials and supplies essential to war industries.

(*c*) Those which have a bearing on the production and distribution of food supplies, connecting population and shipping centers with surrounding agricultural areas.

The Bureau of Public Roads of this department and the Highways Council will, of course, actively consider the supply, for highway purposes, of road oils, asphalts, and other bituminous road materials controlled by the Fuel Administration, the matter of priority, for highway purposes, in the production of materials controlled by the War Industries Board, and will, in contact with the Railroad Administration, aid in securing, so far as practicable, facilities for the transportation of road materials and supplies. Furthermore, the Bureau of Public Roads of this department will act as the medium for furnishing information and assistance on highway problems, especially to State Highway authorities in meeting the various difficulties which they encounter.

Very truly, yours,
(Signed) D. F. HOUSTON,
Secretary.

Assistant Secretary Ousley Discusses Farm Labor Complaints, Suggestions

In the following statement I try to analyze the more common complaints and suggestions concerning farm labor:

There is more or less confusion and misunderstanding concerning farm labor as it is affected by military service and by construction work. There are many difficulties, some of which are easily remediable and some of which must be overcome by methods of substitution or accommodation.

It should be accepted as a fundamental fact that a war of the proportions now waging can not be conducted without serious disturbance of peace-time conditions and practices; and from time to time as the necessity develops for more men for military purposes the disturbance of labor conditions will necessarily increase. At the same time there is yet sufficient man power, if it is properly distributed and utilized to the fullest extent, to serve every necessary industry, but such distribution and utilization must be effected by readjustments of habit and sacrifice of convenience. In spite of all that may be done, more or less hardship is inevitable, and now and then or here and there some loss will be incurred, but this is all to say that the whole scheme of war involves hardship and loss.

We produced record crops last year in spite of labor difficulties, and the acreage and the condition of the crops at this time promise increased yields this year. There is no denying the facts of last year's harvest or of this year's crop conditions. These facts and conditions completely answer the doleful forecasts of the pessimists and sufficiently demonstrate the faculty of the American people to do what needs to be done.

The Draft Law.

Many complaints come to the Department of Agriculture to the effect that farmers and farm laborers have not received proper consideration under the War Department's rules of deferred classification. The law and the rules of the War Department vest the powers of exemption and deferred classification solely and exclusively in the district boards, and there is no authority in any other official to interfere with this jurisdiction except in particular cases. There is only the right of appeal to the President, under terms prescribed by the War Department. Neither the Department of Agriculture nor any other department, nor any official has any power over the district boards. They are composed of the citizens of each State, and they are presumed to have the best information and to be most mindful of the needs of their States and sections. Citizens who feel that boards have acted unwisely should address themselves to the boards or should cause appeals to be made from the boards to the President. The Department of Agriculture is powerless to affect decisions by the boards or to alter the rules of the War Department or to change the law of the Congress.

On March 12 last the Provost Marshal General of the War Department issued an order directing the local boards in furnishing their quotas for the Army, to defer until the last those actively and assiduously engaged in agriculture, even though they had been placed in Class 1. At the time that order was issued the War Department expected to call only 300,000 or 400,000 men before the harvest, but after the order was issued, the German offensive of March 21 began, with its perils to the allied cause, and the War Department found it necessary to call many more men than it contemplated on the 12th of March. Consequently, in many communities the local boards have been compelled to call all the men in Class 1, even though they are engaged in agriculture. It should be remembered that men so called were placed by their district boards in Class 1 and therefore were not deferred but were always subject to call. It should be understood also that the emergency of the present war situation is such that the Nation can take no chance of delay in the mobilization of the necessary man power to reinforce the allies on the western front. The slightest delay might cause a frightful disaster.

Contractors' Activities.

Complaint is made also of many contractors engaged on Government work, who have solicited labor in farm regions. At the outset of the war it was necessary for the Government to make many contracts on the basis of cost and a reasonable profit, in order to insure the instant construction of ships and military works. To have made contracts by the ordinary process would have cost weeks and months of time, and such a loss of time as intelligent men can now see, in view of what is happening in Europe, would have been fateful. Complaints of this sort were taken up with the War and Navy Departments and they intervened to do what they could to prevent such action. A new agency, the War Labor Policies Board, has recently been created in the Department of Labor, and that board will make it one of its special tasks to bring about the discontinuation of such disturbing activities. However, the Government is not now making such contracts and is doing what it can to have all labor distribution effected through Government channels in order to minimize the labor disturbances of which complaint has been made. Moreover, Government contracts now contain a clause prohibiting contractors from soliciting or advertising for labor except with the approval of the Department of Labor.

Use of Convicts and Prisoners.

Many suggestions are made for the use of convicts and war prisoners on farms. As to convicts, the great body of them are under State jurisdiction and the Federal Government has no power over them. It is premature to determine finally what policy should be pursued with reference to prisoners captured in the war. In any event, the matter is one which must be passed upon by the War and Navy Departments. As to the utilization of convicts and prisoners, it should be remembered that they are presumed to be employed in other industries more or less necessary.

Idlers and Vagrants.

Many suggestions are made concerning idlers and vagrants, but as to these, as well as to convicts, the States, counties, and municipalities have jurisdiction, and it is not practicable for the National Government to exercise powers of coercion in communities even if there were any authority under the law to do so. These responsibilities belong to the States and communities, which should exercise them to the fullest possible extent, for, under the conditions prevailing in the Nation and throughout the world, no able-bodied man is to be excused for idling, whatever may be his fortune or his social rank. We will not worthily win the war, if we win it at all, unless States, communities, and individuals are willing to take responsibility, exercise the courage of convictions, and make sacrifices.

Farm Laber in Towns and Cities.

Under the recent order of the Provost Marshal General all men within draft age in deferred classification must engage in useful occupations or they will be thrown into the Army. This order, which will go into effect on July 1, will release many men now wait-

(*Continued on page 4.*)

WHAT THE COW-TESTING ASSOCIATION CAN DO.

The cow-testing association takes the guesswork out of dairying. No longer can the camouflage of a fine appearance protect the low-producing dairy cow. Conformation indicates performance, but the Babcock test and the milk scales always tell the true story. Knowing the true feed and production records of each cow, the dairyman practices selective breeding, eliminates with certainty all low producers, and feeds the remainder according to known production.

Department of Agriculture Advises Against Heavy Feeding of Beef Cattle

In view of the unfortunate experience last winter of some feeders of heavy cattle, the continued high price of grain, and the uncertainty of a continuation of the good prices well-finished heavy carcasses recently command the United States Department of Agriculture believes that feeders should concentrate their efforts on the production of economically short-fed cattle. Of course, this statement does not refer to baby-beef production, which is a specialty within itself.

There is no question that for the last several years cattle feeders have been making beef too fat—that is, they have put more finish upon the animals than economy would justify. This idea was evidently in the minds of the Advisory Committee of Agricultural and Live Stock Producers appointed by the Department of Agricultuer and the Food Administration when that committee recently made the following recommendation:

"We feel that cattle marketed at the present time in class 4 (long-fed or export and highly finished cattle), and known as "exports," owing to the high costs of labor and feed, are not an economical product, and their production should not be encouraged."

Not only has the advisory committee thus warned against the heavy feeding of cattle, but it is also understood that the Government officials directing the buying policies of the Government will not consider themselves responsible fer the prices of very fat cattle.

Beef with Less Grain.

Recent experiments by various State experiment stations and the United States Department of Agriculture have borne out the fact that good beef can be produced by using a relatively small amount of grain, or with nitrogenous concentrates in connection with silage and some other cheap roughage in the form of hay.

The principle that should be followed in future feeding operations, according to the advice of the Department of Agriculture, is to reduce to a minimum the amount of high-priced feed and to make judicious use of cheap roughages. In other words, instead of feeding from 50 to 60 bushels of dry corn per steer in a long feeding period, as was the custom in the past, the quantity should be, and may be profitably, reduced to 15 to 20 bushels in a shorter feeding period, or the dry corn grain can be eliminated altogether, as the liberal use of good quality silage will furnish an excellent ration.

Use of Protein Supplements.

The use of cottonseed meal, linseed meal, or other protein-rich feed, even though high in price, is to be highly recommended, because the higher other feeds are the more profitable becomes the use of a protein supplement. Expensive hay may be completely eliminated in the ration by the use of a cheaper dry roughage, such as corn stover, coarse hay, or straw.

The department believes that by avoiding too heavy feeding and too high finish, and by following the suggestions given above, feeders should be able to feed cattle at a profit in spite of the high prices of feed and labor. The recent statement of the United States Food Administrator and the available reports from foreign countries indicate that there may be a great increase in the demand for beef, which is encouraging to the cattle feeders of this country and especially those who suffered losses during the past feeding season.

Assistant Secretary Ousley Discusses Farm Labor Complaints, Suggestions

(Continued from page 3.)

ing on tables, running elevators, and doing other things which women can do as well or which can be dispensed with altogether, who must find useful work. They will not all go automatically to the farms, but many of them will, and others will find occupation which will release other labor available for the farm. This supplement of labor in early prospect will not entirely supply the demand for farm labor at seasons of strain in cultivation and harvest, but there are other sources. In addition to the men within draft age who are doing unnecessary things, there are men past the military age engaged in the same unnecessary tasks mentioned, and local public opinion should demand of employers that not only able-bodied men doing unnecessary things find some useful service, but that the lighter labor of the city which women can perform should be surrendered to them.

If the able-bodied men of the United States will confine themselves to men's tasks and will work full time there will be little lack of labor for agriculture or for any other necessary industry. Besides these sources there are many men of farm experience in the towns and cities who can be spared for the harvest or for other periods of a few days at a time or for a week now and then to help the farmers to save their crops. More than 30,000 such men have been enrolled in Kansas to harvest the wheat crop, and in hundreds of communities throughout the agricultural regions men of the stores, the shops, and the offices have pledged themselves to give such days as may be necessary to save the crops of their regions. There is hardly a town in the United States that could not spare all its able-bodied men for a day out of the week throughout the year, or for one or more weeks at a time, without any serious interruption to the business of the community. The merchants of Amherst County, Va., have agreed to close their stores every Wednesday in order that their employees may work in gardens or on farms. Similar action in every community in the United States will save the crops without the slightest loss and with no serious inconvenience to any business or any industry. The farmers themselves and their families, including their women and children, are working full time from sunup to sundown. The soldiers in France are not only fighting and risking their lives but they are digging trenches, sawing timber, laying rails, and doing other drudgery. The nurses are not only serving the wounded but they are scrubbing floors. City people must realize the necessity of giving up servants and of lending a hand to the farmers if they would do their share in producing and conserving the food which is required for the winning of the war.

What further action it may be necessary to take as the war progresses to secure the requisite man power in all directions can not now be determined; but in the meanwhile if each community and each individual will assume responsibility and do their utmost, the necessity for further action will be minimized and there will be less likelihood of default in production and of serious interruption of essential industries and business.

CLARENCE OUSLEY,
Assistant Secretary.

The hen, first and last, is the main dependence for increasing the supply of white meat and eggs, but she requires the aid of turkeys, guineas, geese, and ducks, just as, on a dairy farm, the cow requires the aid of pigs, sheep, and goats.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during week ended June 29, 1918:

The Control of the Clover-Flower Midge, Farmers' Bulletin 971.

Commercial Bordeaux Mixtures; How to Calculate Their Values. Farmers' Bulletin 994.

Federal Aid to Highways, Yearbook Separate 739.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

HOW A TENNESSEE COUNTY AGENT IS HELPING WIN WAR

Better Farming, More Money, More Food in Franklin County

Net Gain of $7,230 Over Local Prices the Result of Cooperative Shipping of Live Stock Last Spring—One of 2,500 Counties

That the county agents now employed in 2,500 counties in the United States are doing most effective work in assisting local farmers in producing and marketing their crops and live stock, thus aiding materially in adding to the Nation's food supply at a critical time, is shown by a report from the county agent of Franklin County, Tenn., which was recently sent to the officials of the United States Department of Agriculture. The work of this county agent is typical of what is being done throughout the Nation.

Through his efforts the Franklin County Agricultural Club, a county live-stock association, and a number of community clubs have been formed, and preparations are being made to organize a county bull association. The members of the live-stock association marketed their stock through the organization this spring, and made an average profit per head over the local market price of $27.51, making a total net profit to the farmers and county of $7,230. One live-stock man claims to have made $2,000 by shipping through the association. Another stated that he cleared $800. All the farmers who shipped cattle are highly pleased with the cooperative shipment plan, and the entire association is in for feeding better cattle and more of them.

Business Men and Farmers Inspect.

On the third annual inspection trip of the Franklin County Agricultural Club at least 100 automobiles and 500 farmers and business men took an all-day trip inspecting the farms of the county. Farmers from three other counties and several from another State came to Franklin County to take the inspection trip. In one community the visitors saw 700 acres of crimson clover where four years ago there was no clover of any kind in the locality. The farmers of Franklin County are beginning to realize the value of crimson clover as a soil builder, and are seeing the effects of clover on their soils. There are 4,000 acres of crimson clover in the county this year. In one community crimson clover will average 10 acres per farm.

The county bull association will be formed for the benefit of patrons of the local creamery. The county agent has aroused interest in better dairying, and farmers are enthusiastic over the increased profits which are obtained from high-producing dairy cows as compared with the type of animal they formerly raised. Three pure-bred Jersey bulls will be purchased and placed in three communities.

The county agent is assisting in solving the labor problem by encouraging the use of better farm machinery which will do more work with less man power than was possible with the kind of implements formerly used. Fourteen hullers have been purchased and three farmers have recently become interested in buying new ones, which will make 17 to be used in the county this year. More than 150 reapers will be in use this year in the county.

QUARANTINES AND RESTRICTIVE ORDERS AGAINST PLANT DISEASES AND PESTS

To prevent the introduction and spread of plant and tree diseases and insect pests, the United States Department of Agriculture, through its Federal Horticultural Board, establishes when necessary quarantines which prevent the importation of plants from countries where a plant pest exists or shipments from one part of this country to another. Quarantines or restrictive orders are now in effect prohibiting the importation of cotton seed and hulls from Hawaii and from all foreign countries except Lower California, Mexico; prohibiting or regulating the importation of all fruits and vegetables from Hawaii; prohibiting any importation of living sugar cane; regulating in portions of the New England States the movement of stone or quarry products and of certain plants and plant products on account of the gipsy moth and the brown-tail moth; prohibiting certain interstate movements of five-leafed pines, currant, and gooseberry plants; prohibiting all importations of sweet potatoes and yams from Hawaii and Porto Rico; prohibiting the importation of Irish potatoes from certain specified European countries (including Germany and Austria); regulating the movement of date palms in California, Arizona, and Texas.

Importations of the following are prohibited: Certain fruits from Mexico; all pines from Europe, and 5-leafed pines from Asia, Canada, and Newfoundland; alligator pear seeds from Mexico and Central America; all citrus fruit stock from all foreign countries; Indian corn or maize and closely related plants from India, Siam, China, Malayan Archipelago, Australia, New Zealand, South Sea Isles, Philippines, Formosa, and Japan; sweet potatoes and yams from all foreign countries; banana plants from all foreign countries, including Hawaii and Porto Rico.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination for herbarium assistant, for both men and women, on July 24, 1918. A vacancy in the grass herbarium and one in the economic herbarium of the Bureau of Plant Industry, Department of Agriculture, at entrance salary ranging from $900 to $1,200 a year, will be filled from this examination. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

An open competitive examination for field station aid, for men only, will be held on July 24, 1918. A vacancy in the Bureau of Plant Industry, Department of Agriculture, for duty in Washington, D. C., and occasional assignment at the Arlington Experiment Farm, Rosslyn, Va., the Maine potato stations, and stations in other sections of the country will be filled from this examination. Salary, $720 to $1,000 a year. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Assistants in transportation (male), to fill five vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at entrance salary ranging from $1,800 to $2,400 a year. Examination, July 30, 1918. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

NATION'S LUMBER CUT IN 1917 PLACED AT 35,831,239,000 FEET

(Continued from page 1.)

The number of mills in operation reporting in 1917 was smaller than for the two preceding years.

A comparison of the computed cut for 1917 with the total cut of the previous year in the larger producing regions shows a decrease of about 10 per cent in the southern yellow pine group of States, a decrease of 23 per cent in the North Carolina pine group, and a decrease of 11 per cent in the Lake States. On the other hand, there was an increase in production of 3 per cent in Oregon and Washington.

ENTOMOLOGIST DIES IN BATTLE.

Lieut. Vernon King, formerly scientific assistant in Cereal and Forage-Crop Insect Investigations, Bureau of Entomology, United States Department of Agriculture, died April 11 from wounds received when the British airplane in which he was serving as a flying observer was attacked by three German machines and shot down. Lieut. King was attached to the staff of the Wellington, Kans., field laboratory and was in charge of the Charleston, Mo., station prior to November 5, 1914, when he resigned to enter the British army.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Represent Agriculture in National Research Council.

At the request of the President, the Secretary of Agriculture has designated as members of the National Research Council Henry S. Graves, Forester and Chief of Forest Service; Karl F. Kellerman, Associate Chief, Bureau of Plant Industry, and Raphael Zon, Chief, Forest Investigations. The National Research Council was organized in 1916 at the request of the President by the National Academy of Sciences. The President recently requested the National Academy of Sciences to perpetuate the National Research Council, the duties of which were defined in the Executive order as follows:

"In general, to stimulate research in the mathematical, physical, and biological sciences and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare."

County Saves Clothing as War Measure.

The women of Uinta County, Utah, have saved $2,500 during the last month by remodeling hats and clothing under the supervision of the county home demonstration agent. The work is carried on at meetings to which the women bring their materials and work under the agent's supervision. Three hundred and fifty hats have been remodeled—a saving of at least $1,500—dresses have been made from coats and suits, waists from old shirts, children's clothing from women's dresses, boys' trousers from men's clothing, and boys' overcoats from men's old coats.

War Kitchen to Handle Ton of Products Daily.

A new "Win the War Kitchen" just opened in Richmond, Va., has been established to save surpluses of fruits and vegetables coming to the Richmond markets. The kitchen is in charge of the urban home demonstration agent of the Department of Agriculture, and the State agricultural college, and three assistants. It is situated next to one of the large markets, and has equipment for handling a ton of products daily. In addition to a spacious glassed-in demonstration room there is one room containing a drying plant and a steam pressure canner, another for canned surplus, one for the storage of vegetables, a rest room, and the offices of the urban home demonstration agent and the State leader of city work. The work of the kitchen is being put on a thorough business basis. A committee representing the three markets will buy up the surplus at a reasonable wholesale rate before it goes into the markets, thereby preventing gluts and assuring fresh products for canning and drying. The home demonstration agents are working in close cooperation with the Food Administration.

Butter for the Navy.

Butter for the Navy is being inspected by dairy manufacturing specialists of the Department of Agriculture to insure a uniformly high quality for men in the service. In this work, greatly enlarged since the war, there are 60 specialists inspecting the output of 90 creameries in various parts of the country. Only the best grade of cream is accepted for making this butter. More than six and a half million pounds of butter will be inspected during the season, and most of it will be packed in lacquered tin containers in order to preserve its quality for as long a time as possible.

Center of Agricultural Production in Illinois.

The center of agricultural production of the United States, according to the value of crop and animal products for 1917, is in west central Illinois as shown by a diagram just issued by the Department of Agriculture. The States of greatest production are: Iowa, $1,330,000,000; Illinois, $1,255,000,000; Texas, $1,045,000,000; Missouri, $947,000,000; Ohio, $851,000,000; Nebraska, $774,000,000; Indiana, $766,000,000; Kansas, $735,000,000; New York, $700,000,000; Minnesota, $646,000,000; Pennsylvania, $636,000,000; Georgia, $605,000,000; Wisconsin, $598,000,000; California, $575,000,000; Michigan, $534,000,000, and Kentucky, $529,000,000.

To Instruct Foreign-Speaking People in Canning.

Boy and girl club members who speak a foreign language are being taught by the extension workers of the United States Department of Agriculture and the State agricultural colleges to give canning and drying demonstrations to foreign-speaking people in their communities. These young teachers are being taught in teams of three. They must give the demonstration to the audience first in English, and then in the foreign language. This is for the purpose of educating the foreign-speaking people in English. It is the aim of the extension workers in the 33 Northern and Western States to have a trained team of volunteer members to give canning and drying demonstrations wherever there is sufficient number of foreign-speaking peoples to warrant it.

Priests Help in Food Work.

Home demonstration agents of the Department of Agriculture and the State agricultural colleges have received much help in food conservation work from priests of foreigners' churches. The priests give out information for the agents to members of their congregations and announce meetings and demonstrations. Sometimes they come to the meetings and speak. This influence is very valuable in impressing upon the foreign-born women the need of learning how to meet the food regulations.

Encourages Production of Flax.

To encourage the production of flax to meet the demands for oil seed, the Department of Agriculture assisted in locating stocks of seed for growers in Minnesota, North Dakota, South Dakota, and Montana. Through various agencies that have cooperated with the department's committee on seed stocks, necessary arrangements were made to interest farmers in a larger acreage of flax. In the States mentioned commercial agencies were interested, extension workers addressed groups of growers outlining the need for increased production and best methods of culture, and posters were prepared for use in reaching individual farmers. The early opening of spring permitted early sowing of small grains, and left farmers free to prepare ground and sow flax, so the crop has had a good start.

Southern Dairy Extension Workers Meet.

More than 40 dairy extension workers of the Department of Agriculture, State dairy workers of the various Southern States, directors of the State extension work, and others met at Memphis, Tenn., June 26, 27, and 28 to discuss dairy and creamery problems and the development of dairying in the Southern States. Feeding problems, problems involved in buying cattle, in the eradication of tuberculosis, organization of cow-testing associations, bull associations, and calf clubs, and other problems relating to the development of the Southern dairy industry were discussed. The relation of dairying to the conditions occasioned by the war occupied a prominent part of the program.

Kindergarten Teachers Give Food Demonstrations.

Two hundred and fifty kindergarten teachers in Boston, Mass., have just completed an

effective food-saving campaign. During the school year these women have received a course of instruction in conservation from the city home demonstration agents of the Department of Agriculture and the State agricultural college. This has fitted them to do volunteer food work among the mothers whom they visit frequently in connection with the regular school schedule. They give advice to the individual women in the home kitchens. They meet small groups at some neighbor's home and give many talks and demonstrations to mothers' clubs.

Boys Help New York Farmers.

Farmers in many sections of New York State are dependent entirely on city boys to help them tend and harvest their crops, according to field men of the United States Department of Agriculture. Both farmers and boys seem to be satisfied, it is reported. Most of the boys are from New York City and have volunteered to spend the summer on farms to help the Nation to produce food. They are organized in groups of from 40 to 60, each group being sent to a different community, where the boys are in charge of a supervisor who assigns them to the various farms. The supervisor visits each farm at least once a week to see that the youthful food producers are giving their employers satisfaction.

Department of Agriculture Sends Food to Hospital.

Surplus fruits and vegetables from the Arlington Experiment Farm of the Department of Agriculture are being taken care of by the war relief association of the department and sent to the Walter Reed Hospital of Washington for convalescent soldiers. The products are picked by volunteers from the department who go out to the farm after office hours in the afternoon. Several thousand quarts of fresh strawberries, cherries, currants and gooseberries have already been sent to the hospital. During July and August the products will be canned in the department's kitchens and turned over to the hospital for winter use.

Women Act as Cow Testers.

Five women cow testers have recently been appointed by dairy agents of the United States Department of Agriculture, cooperating with the State agricultural colleges and the State dairymen's associations. One of these has been placed in Iowa and the other four are in Wisconsin, where the first woman cow tester in the country is now starting her second year of work. These women have received training in agricultural high schools or have taken work in dairying at short courses, and all of them have been in close touch with dairy work.

Seed Men Pledge Help.

The American Seed Trade Association, after a recent meeting in Chicago, reelected its war-service committee to cooperate with the Department of Agriculture, and telegraphed to the Secretary of Agriculture a resolution pledging "unreservedly, our money, our lands, and ourselves," and "our entire resources to win the war and to so increase our efforts in producing crops that we may stay the dread scourge of famine."

Tuberculosis-Free Herds to be Listed.

A list of the owners of accredited herds—pure-bred dairy herds that have shown by two annual tuberculin tests that they are free from tuberculosis—together with owners of herds that have successfully passed one test, the number in the various herds and the breeds, will be published by the Bureau of Animal Industry in July. It is planned that this list with additions will be published periodically thereafter. This information will be of value to buyers and sellers of dairy cattle, as it will enable buyers to locate cattle that are free from tuberculosis and will help breeders in finding a more ready market.

More Silos for Beef-Cattle Breeders.

A silo campaign to increase the number of silos on beef-cattle farms is being conducted by the Bureau of Animal Industry in cooperation with State authorities and county agents. With more silos more beef cattle can be produced and economically fed during the winter. This campaign, therefore, has a direct bearing on increasing the meat supply of the Nation. The campaign is being given special attention in the southern States, particularly in territory which has recently been freed from cattle-tick quarantine, where the production of beef cattle is on the increase.

Velvet Beans to Fatten Steers.

Velvet beans, the great forage and feed crop of the South, is being given special attention by the Animal Husbandry Division. Investigations are being conducted by this division in cooperation with State agricultural colleges to determine the most economical form in which to feed velvet beans to fatten steers. The results of practical feeding tests conducted during the past year have been compiled and are being distributed among farmers and feeders in sections where velvet beans are grown successfully.

Seed of Cereal Crops for 1919.

To locate adequate supplies of good quality seed of cereal crops for 1919, field inspectors of the Department of Agriculture have already begun work in the southwest. Work is now being done in fields of Kanred wheat in Kansas and of Early Baart wheat in New Mexico and Arizona in order to make available large supplies of seed of this variety for use in these States and in California next year. This work will be extended with wheat and other grains in the more important grain-producing areas of the United States as the season advances. The department is also cooperating with State authorities in selecting and inspecting potatoes to be used as seed next year.

Study Milk Supply for Army and Navy.

To insure sanitary sources of milk for men in Army cantonments and at naval stations, market-milk specialists of the Department of Agriculture are assisting public-health officials in working with dairy farmers to improve the milk supply. The zones around 12 cantonments and naval stations have been covered wth very beneficial results.

Hay for Army Mules and Horses.

Large numbers of horses are being gathered at the Army camps in various parts of the United States and they require heavy shipments of hay from primary points to the larger marketing centers. Many of these horses will be shipped abroad, and hay as well as more concentrated feed must follow them. More horses, in turn, will be required at the training camps here. Thus the supply of hay as well as other feeds will have to be kept moving and in ample quantities from the farms and warehouses. The Bureau of Markets' grain and hay reporting service is prepared to give assistance wherever needed in the marketing of hay.

Assists Army and Navy on Cold Storage Problems.

Cold-storage specialists of the Bureau of Markets are assisting the Quartermasters Corps of the Army and Navy in handling problems connected with the movement and storage of butter and frozen beef.

Surplus of Velvet Beans in the South.

Because of the surplus of velvet beans in the South efforts are being made by the Bureau of Markets to acquaint dairymen and feeders of live stock in the North and East of the value of velvet-bean meal in feeding live stock. Experiments have been conducted at southern experiment stations indicating that this meal is an excellent feed for cattle, horses, and hogs, and it is pointed out that because of the high prices of mill feeds velvet-bean meal should be used more generally by dairymen in the North and East.

Poultry Appeal Renewed.

Renewing their appeal to Americans to increase production of poultry and eggs, the specialists of the United States Department of Agriculture in a meeting at Kansas City in June adopted a platform of production with the following aims: Keep better poultry; select healthy vigorous breeders; hatch early; produce infertile eggs, except for hatching; preserve eggs when cheap for home use; cull the flocks; keep small flocks to supply the family tables; grow as much poultry feed as possible; eat more poultry and eggs and conserve the meat supply.

CATTLE TICK ERADICATION AGAIN TO BREAK RECORDS

Department Expects to Set New High Mark in Combating Parasite

Drive Now for a Tick-Free Wedge Through South Carolina to the Atlantic Ocean—To Free Country by 1921

Records made last year in eradication of the cattle fever tick and the release of territory from Federal quarantine will soon be eclipsed. The Bureau of Animal Industry of the United States Department of Agriculture expects to win more ground from the parasite this year than in any year since the cooperative Federal and State campaign was started in 1906. The 1917 mark of 70,749 square miles released from quarantine is expected to be considerably bettered in 1918.

Further than that, the tick fighters are going to smash through to the ocean. It is practically certain that all of South Carolina will be released from quarantine next December 1, the department specialists say. South Carolina will be the first State on the Atlantic coast to be entirely freed. Last year the antitick forces drove a wedge through Mississippi to the Gulf. This year they hope to widen the wedge to the Gulf by including Louisiana in the tick-free area. With the wedge to the Gulf and the wedge to the Atlantic, the cattle fever tick will be the victim of an encircling movement. His days are numbered. By 1921 the tick fighters hope to have driven the parasite permanently from American territory.

Progress in South Carolina.

South Carolina progress has been rapid. Eradication of the tick was taken up actively in that State only in April, 1914, when the legislature provided funds for cooperation with the Department of Agriculture. Fourteen counties had been released at that time, but the great body of the State was still tick infested. The work has been carried on steadily and systematically and has been free of disturbance and hostile agitation.

With the eradication of the tick in South Carolina a new era for live-stock raising is expected to open. South Carolina, like other Southern States, has excellent soil and climatic conditions for pasturing. Cultivation of both plant and animal life will go hand in hand. One of the great obstacles which has prevented the South from feeding itself will have been removed from South Carolina, as it will eventually from all the Southern States.

Benefits in Mississippi.

Benefits of tick eradication are indicated in reports that are coming to the Department of Agriculture from Mississippi. Since the quarantine was raised in December, 1917, there is said to have been an unprecedented influx of capital and pure-bred live stock to that State. Thousands of pure-bred cattle and hogs have been taken there, and large numbers of people have gone from corn-growing States to buy land and establish breeding farms to take advantage of the favorable conditions for stock raising. The same reports always have followed wherever the tick has been driven out.

WHAT THE BULL ASSOCIATION CAN AND CAN NOT DO.

The bull association can not give you something for nothing, but it can furnish you a share in from three to five $300 bulls for $50. These bulls can not increase the production of the cows you now have, but they may double the production of the daughters. The daughters of association bulls and grade cows can never be registered, but in every other respect they may be the equal of purebreds. The bull association can not compel you to join, but if you do join you will soon own a better herd and become a better farmer.

"DISTINGUISHED SERVICE" FARM MEDALS OFFERED TO INDIANA HIGH PRODUCERS

Indiana farmers who produce exceptional yields of corn this year will be given war medals by the State. The average corn production of Indiana is 40 bushels. Farmers who produce 100 bushels this year will be awarded a gold medal, those producing 85 bushels a silver medal, and those producing 75 bushels a bronze medal. The yield must be maintained on a tract of at least 5 acres.

This plan was proposed by G. I. Christie, director of agricultural extension work in Indiana and now directing the farm labor work of the United States Department of Agriculture under Assistant Secretary Clarence Ousley. The medals will be paid for by the State, and the awards determined by representatives of the United States Department of Agriculture and the State Agricultural College. Already 45 counties of Indiana have been organized for the contest. Organization will continue until August 1, and every farmer who intends to compete must notify his county agent and conform to certain requirements. No field will be examined by the judges or considered in the contest, no matter what its yield may be, unless the farmer has been properly enrolled. Through the county agents the United States Department of Agriculture and the Indiana extension service will disseminate information regarding the cultural methods calculated to bring about increased corn production.

Food Production Necessary Sunday Work, Attitude of Rural Churches

It is quite right and proper to do farm work on Sunday if that Sunday work is necessary to produce food crops to help whip Germany. That is the attitude of the rural churches of Indiana expressed recently in conference at Purdue University. The reason given for this position was the conviction of Indiana rural ministers that Germany is the worst enemy of civilization and of every church of civilization, of all religion everywhere that is worthy the name of religion; that the victory of the barbarous Huns would be literally the victory of the devil and the triumph of that pagan monstrosity created by the Kaiser's savage and sacrilegious mind and called by him "the good old German gott"; in short, that every church in America is fighting for its existence, just as every other component of civilization is fighting for its existence, and that if Sunday work in saving crops will help overthrow this bestial menace it becomes veritably a churchly work to do.

This conference of the rural churches of Indiana was held at Purdue University under the auspices of the department of agricultural extension.

Secretary Houston Sends Greetings to Montana County Farm Bureau

The following telegram recently was received by the Secretary of Agriculture:

"Complying with your request, farmers of Flathead County, Mont., have to-day organized farm bureau. Through this organization the farmers will aid the Government in the prosecution of the war to the utmost of their ability, and to this end pledge their hearty and unified action and support."

In reply Secretary Houston sent the following to W. S. McCormack, president of the Flathead County Farm Bureau:

"Department of Agriculture gratified at action of farmers of Flathead County in organizing farm bureau. Through the farm bureau the State and the Government can more effectively cooperate with the farmers in their efforts to produce an adequate supply of food, feedstuff, and live stock."

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. V JULY 17, 1918 No. 50

POISON MAY CONTROL WORST PEST OF AMERICAN COTTON

Boll Weevils Disappear Before Federal Entomologists' Arsenicals

Treated Areas Yield 250 to 1,000 Pounds More of Seed Cotton Per Acre—Further Tests Necessary to Perfect Methods—Experiments Cover Five Years

Control of the cotton boll weevil seems to be in a fair way of accomplishment by the work of an entomologist of the United States Department of Agriculture.

When that insidious pest, which has been taking heavy toll of the cotton crop and annually extending his feeding grounds, stops his work of puncturing cotton squares and bolls, and ambles forth to quench his thirst from a dewdrop or raindrop on the cotton plant, he is likely in the future to imbibe a poisoned draught which will be as effective as a knock-out drop. What this means to the cotton growers of the South and the industry as a whole can hardly be estimated in dollars and cents, but the curtailment of the weevil's activities, even in small part, is so important as to make the discovery by the Department of Agriculture of the fact that arsenicals may be used as a powder spray in controlling this pest one of its most striking and valuable contributions to the agricultural industry.

Poison Weevil's Drinking Water.

Mr. B. R. Coad, of the Bureau of Entomology, while working on some biological investigations of the boll weevil, found that although the weevils are not hard drinkers, they drink regularly from the rain or dew collected in droplets on the leaves of the cotton plants. Having been on the trail of the cotton boll weevil for some time, his logical inquiry was, "Why not poison the water which the weevils drink?" Since 1913 Mr. Coad, with a corps of entomologists with headquarters at Tallulah, La., has been experimenting with various poisons applied in different ways, all with the purpose of administering a dose which would be fatal to these insects which have invaded such a large part of the cotton-producing territory of the South.

These entomologists have not finished their work, but they have proved by a series of experiments that boll weevils can be poisoned under field conditions and that poisoning is a practicable method of controlling the pests. The usual check plats have been used in these experiments, and the results have shown that yields of from 250 to 1,000 pounds more of seed cotton per

(Continued on page 5.)

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"No Surrender" Is Slogan Of Farmers in Montana

"Are we downhearted? No."

Crops failed in Toole County, Mont., last year and dry weather threatens another failure this year, but Toole County farmers have adopted the slogan of the boys on the Western front. Witness the following telegram to the Secretary of Agriculture from C. A. Michaels, county agricultural agent in Toole County:

"Three hundred and fifty patriotic Toole County farmers to-day perfected permanent farm-bureau organization to cooperate with agricultural college and United States Department of Agriculture. In face of crop failure in this county last year farmers increased wheat acreage this spring 15 per cent. We have had no rainfall this season and are facing another crop failure. However, we have not lost heart and will fight the enemy to the successful ending of this war for liberty and democracy. We look to you as the farmers' leader in the President's war cabinet and depend upon you to supply the food production program."

In reply Secretary Houston wrote:

"The department greatly appreciates the patriotic action taken by the farmers of your county in organizing a farm bureau to cooperate with it and with the agricultural college in their food-production campaigns. The county farm bureau is one of the best agencies yet devised for insuring the interest and cooperation of the people in rural districts in the plans for increased production. Will you not, as the agent of the department, express to the farm bureau officers the department's appreciation of their action?"

SOUTH, GROWING MORE FOOD, NOW BEGINS TO FEED ITSELF

Reports Show Encouraging Increases in Food and Live Stock

Hogs Shipped from Southern Alabama Counties Increase from None Four Years Ago to 2,352 Cars Last Year—County Agents Aid

There used to be a story about a southern farmer who bought his beans in Boston, his furniture in Grand Rapids, his food in Cincinnati, and his feed in St. Louis, and all he raised on his farm was a pack of dogs, but that story, according to reports coming in every day to the United States Department of Agriculture, is getting so far from the truth that it hardly deserves a place in the wildest fiction.

For the South is beginning to feed itself. More than that, it is beginning to help feed other sections of the country. The South is divorcing itself from its dependence on the one-crop system, and is raising food and feed as well as cotton in large quantities.

Furthermore—and what is of immediate 1918 importance—the South by feeding itself is decreasing the drain on the North and West and is releasing products of those sections to be shipped across the ocean as liberty food.

Hogs Where Hogs Never Grew Before.

Here are some items that prove the evolution—almost the revolution—in southern agriculture:

Until four years ago not a single carload of hogs was shipped from 17 counties in southern Alabama. In the year that ended April 1, 1918, the carloads of hogs shipped from the same 17 counties numbered 2,352. The total value of these hogs is estimated to be more than $4,000,000. Formerly this section produced little except cotton. Now it is contributing to the food supplies of the Nation. It is raising peanuts, velvet beans, corn, oats, and winter grazing crops and has permanent pastures of Bermuda grass and

(Continued on page 6.)

Assistant Secretary Pearson Points out Business Men's Part in Food Production

Food production problems and how business men can help in their solution was the subject of an address June 12, by Dr. R. A. Pearson, Assistant Secretary of Agriculture, before the National Wholesale Grocers' Association in its annual meeting at Cleveland, Ohio, Dr. Pearson's address in full was as follows:

This is a "Conservation Convention," but if you have a slogan I am sure it is that this shall be a win-the-war convention. I can not think otherwise of you gentlemen, and of your association, because I know something of your promptness in offering to cooperate with the Government when we entered the war, and I know something of what you have done since, including voluntary financial sacrifices. My information has come from some of your members with whom I am acquainted, but more particularly from occasional conferences with your president, Mr. Whitmarsh, whose unselfish and loyal service as an individual, as president of your organization, and one of the chief officers of the Food Administration, is worthy of high commendation. Also I have read your bulletin, which is full of valuable information and bristles with patriotism and reflects credit upon your secretary, Mr. Beckmann.

Some day the things that have happened and are now happening will be shown up to all of us in parallel columns and then we shall have time to give more attention to and evidence more appreciation of those who have come to the front and fought for their country both in and out of the military service. There will be parallel columns telling why the different countries entered the war.

Why Different Countries Entered War.

In the case of Germany it will be selfishness first, arrogance second, conceit third, and avarice fourth.

In the case of France it will be self-defense first and defense of ideals second.

In the case of Great Britain it will be honor first and defense of principles second.

In the case of the United States it will be defense of ideals first and self-defense second.

Another set of parallel columns will show methods of warfare. It will give such items as this: A German submarine stops the *Belgian Prince*, a defenseless boat, and orders her crew to come aboard the submarine, throw off their life preservers, and stand helpless as the submarine speeds through the water, gradually submerging while one after another of the helpless sailors is washed away. As compared with this, there will stand the record of an American fighting ship which captured a German submarine, took the crew aboard, some of them were even rescued from the water where they had found themselves due to their own treachery, fed them, clothed them, and delivered them to safety.

Another set of parallel columns will show what is done in captured territory. In the German column we shall have accounts of the most atrocious cruelties as compared with decency and kindness shown by the allies and this country.

It is too early to predict what will be in the parallel columns showing the accomplishments of the war, but we are all confidently hoping it will show that Germany gets what she richly deserves—that she recognizes she is not the sole and directing partner of the Almighty, and that she will do well to rule such part of the world as the United States and the allies will permit. As compared with this our chief hope is that our country may continue to prosper along the lines laid down by our grandfathers and that our ideals of liberty and justice shall become even more widely and more firmly established here and, in fact, throughout the whole world.

Farmer's Place on Honor List.

But hard work, great sacrifices, and bitter suffering must be accepted willingly if the end we seek is to be realized. When the history is written, individuals and associations that have loyally helped throughout should be duly recognized. On the honor list of these, besides the name of your association and others, I believe that the farmers of this country also will have a prominent place. Their problem is exceedingly difficult. I am here to tell you something of it and to suggest ways in which further cooperation between agriculture and business interests, your own business particularly, may be developed.

About half the people in this country are classified as rural and depend intimately upon agriculture. The other half depend upon agriculture to a greater extent than many of them realize. It would be interesting to show how our country is steadily developing along industrial and nonagricultural lines, with the growth of many large cities—now about 125 having a population over 50,000—with their peculiar problems. These developments have occurred with little thought that they are limited by developments in agriculture. If one man can produce only as much as his own family must eat, then each man must be a farmer. But, thanks to our good soil, our organizing ability, and our inventive genius, the average farmer produces more than his family needs. Therefore every second family may be classed as nonrural or urban.

Changes in Agriculture.

Those who have been engaged in agriculture for the past 25 years have seen vast changes in their business. In 1895 corn sold as low as 25 cents per bushel; each bushel leaving the farm carried 17 cents' worth of plant food or soil fertility. About the same time wheat sold at 52¾ cents for a bushel, and each bushel leaving the farm carried away 23 cents worth of plant food. Oats sold at 16½ cents a bushel, with each bushel carrying 10½ cents worth of plant food. Hay sold at $8 per ton, with $5 worth of plant food in each ton. An enormous number of farmers in our country were then living by reason of the fact that they were able to steal fertility from their lands. They were using their capital for maintenance expenses. No one knew these things better than the best farmers themselves. We did not then hear of business men, bankers, and railroad men talking of the advantages of farming and advising their sons to go into that kind of work. On the contrary, the most promising sons of farmers were advised and helped to get away from the farm into law or business or medicine or anything respectable that would pay. To a large extent respectability depended on the pay.

At that time there was much complaint because of overproduction in agriculture and correspondingly low prices. Statistics were compiled to show, for example, that farmers did better with their corn crop, receiving much more per bushel and a larger total, when the yield was 20 bushels or less per acre than when it was, say, 28 bushels per acre. The market situation was such that unusually large crops could not well be disposed of. This may become an important matter in our agriculture almost any year. For example, a certain crop in a certain State recently amounted to 18 million bushels, worth about $1.20 per bushel, or a total of 22 million dollars. In an earlier year it was 30 million bushels, worth 40 cents per bushel, or a total of 12 million dollars. It is easily seen why overproduction was feared and why it might be disastrous. During that time the educational efforts in the field of agriculture were largely along the line of more economical production.

A New Period in Agriculture.

Another period in agriculture began ten to fifteen years ago, when it was found that our surplus of agricultural products was rapidly approaching the vanishing point. Our population was increasing faster than food production. James J. Hill was one of the first to see this, and he prophesied that the Nation would go to bed hungry within twenty years if the development of agriculture did not receive better attention. Prices

of agricultural products increased somewhat. This gave new hope to farmers. Agriculture was looked upon with more favor and sons of farmers decided to stay in the business, and young men raised in cities looked upon agriculture as their future occupation with as much favor as law, business, medicine, or manufacturing. Everyone seemed to appreciate the importance of agriculture, whether engaged in it or not—it was a 100 per cent proposition! Farmers improved their methods. They were able to get better machinery and to repair their buildings.

During this period there was rapid development in the field of agricultural education and experimentation. Many problems were solved, and a vast amount of knowledge was made available. About twenty-five years ago a friend of mine went to a State university to get all the information he could about dairying. He got all that was offered in four lectures. To-day he could hardly get it in four years. At the close of the Civil War a young man returned to the college he was attending when he enlisted and with the determination to get all the science offered. He got it in three months. To-day he could not get it in thirty years.

One of the greatest instruments for improving agriculture during these years was the Federal Department of Agriculture with its experts on every phase of agriculture, its close touch and cooperation with agricultural colleges in all the States, and its great number of publications.

But the old surplus was not restored. Our population was increasing too rapidly. The excess value of our agricultural exports over our agricultural imports was about 450 million dollars per year 18 years ago. It was about 350 million dollars 8 years ago. It was about 300 million dollars 6 years ago. In 1914 the value of our agricultural exports exceeded the value of our agricultural imports by only 207 million dollars. In 1915, with the war demand from Europe, the difference was 600 million dollars, but in 1916 it fell to 370 million dollars. In 1917, with our stimulation of production and conservation, it was about 575 million dollars, about the same as in 1901.

How Meat and Milk Declined.

Between 1900 and 1915 our production of meats per capita of population fell from 248 pounds to 212 pounds, and at the same time the production of milk per capita of population fell from 95.6 gallons to 75.5 gallons. Meat and dairy products furnish about 37 per cent of the food used on the American table. In the same period cereals, supplying 31 per cent of our food, declined from 43.9 bushels to 40.2 bushels per capita of population. Of course, we had to save ourselves by cutting down our exports. In 1900 we were exporting about 500,000 live cattle per year. In 1914 the number was 18,000, and in 1915 less than 6,000. Fresh beef exported annually at the beginning of the century amounted to about 300 million pounds per year. In 1914 its was less than 7 million pounds. The war demand increased the amount to 230 million pounds in 1916, but there was a falling off to about 200 million pounds in 1917. The total exports of beef and beef products, fresh, canned, cured, oleo oil, etc.; was more than 700 million pounds in 1901, but only 151 million pounds in 1914, and, with the European war demand, the largest annual exports have amounted to only 457 million pounds up to and including 1917. The estimated total for 1918 is 502 million pounds, which is less than any year from 1901 to 1908.

We are making a great effort now to export pork products, but our record in 1916 shows the same quantity exported as in 1901, namely, 1,462,000,000 pounds. Between these two years the exports of total pork products fell as low as 707 million pounds in 1910. The estimated total for 1918 is 1,504 million pounds.

Cheese exports now also are greatly stimulated because of the food situation in the countries of the allies, but the amount exported in 1917 was practically the same as our average exports 25 years ago—66 million pounds. Less than half as much will go out in this year, 1918. Four years ago the cheese exports were less than 3 million pounds. Our heavy imports of cheese have greatly decreased in recent years.

Our Wheat Exports.

As to wheat and flour, these exports also have fallen greatly. In 1917, and with the sacrifice which we made during the first three months we were in the war, we exported only as much as we sent out in 1903, 203 million bushels of wheat (including flour reduced to wheat). In this year, 1918, we will send out only about 132 million bushels (and about 30 million bushels of this will have been imported). Five times between 1901 and 1917 our wheat exports (including flour) fell below 100 million bushels, and one year it was below 50 million bushels. With our record-breaking crop and the strong demands from Europe, we exported 333 million bushels in 1915, but the exports fell to 243 million bushels in 1916, and to 204 million in 1917. Exports of corn (including corn meal) also have fallen off greatly. In 1900 they were about 200 million bushels, in 1910 about 50 million bushels, the same in 1915, 40 million bushels in 1916, and 66 million bushels in 1917.

War Production.

We have now entered a third period in agriculture which was formally recognized 14 months ago when we entered the war. We were facing a crisis in agriculture at the time. It is a period of increasing production to meet war demands. The need of increasing food production has been strongly emphasized for three purposes: To help feed our allies, to provide for our increased population, and to meet the increased demands for food which come with increasing industrial activities throughout this country.

Food production in the countries of the allies is greatly decreased. In France the total cereal production has been reduced nearly 50 per cent, cattle have been reduced 16 per cent, sheep 35 per cent, and hogs 40 per cent. Meat consumption in France is reduced 36 per cent; with three meatless days per week. There are many restrictions on the diet. The French High Commissioner tells us that in France they may make ice cream, but they may not put in it sugar, cream, or flour.

In Great Britain strenuous efforts are being made to sustain the food supply, but there to a large extent, as in France to a less extent, they have always depended upon imports of food, and the imports are interferred with seriously. The United Kingdom normally produces about 6½ million tons of grain and imports 10½ million tons; total requirements are about 17 million tons. A large part of this is consumed by animals which produce milk and meat, but serious attention is being given to the suggestion that the number of animals must be severely reduced so as to make the food they consume available for people.

Dangers of Food Shortage.

We are reminded of what happened in Russia when the food supply became short and how a shortage of food affected the surrender of Roumania and the collapse of a wing of the Italian army.

Those of us who are engaged in food production and food manipulation and handling may well believe that "*food will win the war*" and guide ourselves accordingly.

What this Nation is Doing.

Three days after Congress declared a state of war existed between Germany and this nation the Secretary of Agriculture presided over a conference in St. Louis where questions relating to food production were carefully considered and policies were formulated. This conference and a similar but smaller one in California were attended by agricultural leaders from all the States. The recommendations of this conference have been supported in the main by congressional action, including emergency appropriations. The farmers have responded splendidly.

During the year 1917 live stock of all kinds increased in number. The number of acreage of six leading food crops was increased from 202 million in 1916 to 226 million in 1917, 12 per cent, while the production of these same crops increased from 5 billion to 6 billion bushels, 20 per cent. Farmers made this record, which apparently they are maintaining and exceeding in the present year, in spite of many difficulties. The cost of labor increased in some sections 100 per cent. They found it difficult to secure fertilizers. There was a shortage of good seed. There was a shortage of transpor-

tation, having the effect of a serious overproduction of certain crops.

These difficulties have been handled vigorously by farmers themselves. They have been assisted from different sources, including especially State colleges of agriculture and the Federal Department of Agriculture. Steps have been taken to find all unemployed labor and put it to work. The Federal Seed Stocks Committee is doing a vast work in finding the best seed possible and making it available where it is most needed at cost prices. More complete information than ever before is being given to farmers concerning agricultural production along special lines in different parts of the country. Never in our history have there been waged more campaigns against destructive diseases and insects affecting both animals and plants. Better methods of production are being encouraged in every way possible.

There is now located in practically every agricultural county of the country an expert known as a county agricultural agent or a demonstration agent, whose business it is to advise farmers. In many counties a similar woman agent is serving in the interest of food production and conservation in which women are interested.

What Farmers Are Asked To Do.

The situation demands of the farmers of the country four things in particular in reference to production:

1. To maintain and strengthen good methods of farming. This is to assure as large or larger production next year and in later years as may be required.

2. To produce as much as possible of the food and feed needed in the locality where it is to be used. This is te relieve transportation.

3. To produce a surplus of exportable grains. This is for the benefit of the allies.

4. To avoid producing more of perishable products than can be cared for. This is to prevent unnecessary losses.

Cooperation Between Farmers and Business Men.

Your help is needed in several ways.

First. There should be an active campaign in every business community to find men employed in stores, offices, and manufacturing plants who have been trained in farm work and who can be spared to assist on the farms during the peak of the load. In harvest season in some sections of the country almost every able-bodied man who is not in military service should be on the farm. The additional food that one additional helper may save is an important item to ourselves and the allies.

Second. In some sections the assistance of business men is needed to help the public to see that some increased prices of agricultural products—eggs, for instance—are legitimate. Because of misunderstanding there have been boycotts and much harm has resulted.

Third. Wholesale grocers through their own efforts and their correspondents can accomplish much toward inducing the public to consume food produced at home or near by. It is just as unreasonable for canned peas to be shipped both ways across the country as for coal to be so shipped. The cross hauling of food products should be reduced to the lowest possible amount. We are making good progress in eating things produced in the locality, but much more needs to be done along this line. Also farmers need to be encouraged to produce more articles that can be consumed in their locality. This relates particularly to sections which are habitually importing food products that they can raise as well as not.

Fourth. Particularly the public should be encouraged to use food products that are both good and cheap. At the present time this includes dairy products. The dairy industry has suffered severely because of the reduced consumption of milk and milk products. When the dairy industry suffers agriculture suffers, and in the end this means a smaller production of field crops, and, therefore, higher prices for them. Last spring the grocers of this country, under the leadership of President Whitmarsh and Mr. Lichty, gave much assistance in encouraging the larger use of potatoes, which were very abundant and cheap. Another spring similar action may be needed to help dispose of some other crop, and thus we will save the less perishable products to be stored or exported.

Standards Simplify Food Production.

Fifth. With the extension of recognized standards for food products, the whole subject of food production and delivery is being simplified and stabilized. I do not refer to legal standards so much as to commercial standards. The time should come when distributors of food may deal more directly with producers through the aid of established standards and thus eliminate some expensive handling and sorting that seems to be unavoidable at the present time.

Sixth. In the interest of our national development at all times and in the interest of war efficiency just now our agriculture must be well maintained. It should be remembered that the agricultural unit is a small unit. There are six million farms in this country, each an individual unit. It is to the interest of persons who do not live on farms even more than to the interest of those who do live on farms that production shall be kept up. This means that all people, not farmers alone, but those who live in cities as well as the farmers, are interested in experimental and educational activities along agricultural lines as conducted by the Federal Government and the States. These efforts should be liberally supported.

Losses amounting to millions of dollars, which must come indirectly from the pockets of the public, can be greatly reduced oftentimes by trifling expenditures. This thought is sufficiently well recognized by many public men, editors, and statesmen, but it needs to be impressed upon others.

Workers Behind the Scenes.

In conclusion I want to say that the work of farmers and the work of wholesale grocers in this war is alike, in that the better it is done the less attention it will attract—there is nothing spectacular about it; we are workers behind the scenes.

And let me say that farmers desire to cooperate with you not only in the ways I have indicated, and which relate to agricultural work, but also in similar ways relating to the welfare of your own industry in so far as this contributes to the national welfare. If there are questions on which they need to be better informed, the information should be suitably arranged and given to them through some of the many channels of communication that are available.

We have just read in the newspapers that the King of Austria wrote to the King of Roumania that this is a time when kings should stick together. A true statement. We want them to stick together in all cases where they stand against humanity and justice—and to fall together. We know that their fate rests with our own Nation. If the great principles we now uphold are to endure, we too must stick together—our Army and Navy, wholesale grocers, farmers, laborers, and all loyal groups and individuals, which should include the whole Nation. We must sympathize with each other and help each other and uphold our leaders. Then the years we have enjoyed as an independent people, the tears that have been shed, and the blood that has been spilled shall not have been in vain.

ORDER GRAIN SACKS NOW.

Grain growers, order your sacks now. If this is not done some growers may find that when they are ready to use the sacks they will not have an adequate supply. This year the local dealer will not carry as large a supply of stock as he has in previous years, but will order only enough sacks to meet the needs of his trade. For this reason grain growers should let him know as soon as possible how many sacks they will need, so that by placing his order early any delays in transportation can be avoided. Make sure of your supply—help your dealer and the manufacturers by ordering early.

Sheep are capable of getting a large per centage of their feed from rough, weedy pasture not capable of carrying cattle, but it is a mistake to encourage or advocate the raising of sheep by people whose main interest is in weed control.

"Shock Troops" in Wheat Fields are Helping to Hold the Harvest Line

"Shock troops" are busy in American wheat fields as well as on the western battle front. When the German war lords command an advance at any cost shock troops are sent forward to buy yards of ground with thousands of lives, but the American agricultural "shock troops" advance in a different manner. They are town men who have volunteered to help farmers cut and shock their wheat, and thus are doing their part in making the battle line firm.

Here are two instances, reported to the United States Department of Agriculture, of how towns and cities are helping to meet the need for harvest workers on American farms:

A South Dakota county has organized all its towns. When labor is needed all business places close early and the town men go in automobiles to every quarter of the county. When they come to fields cut but not shocked they get out and shock, and then proceed to other fields needing them. They don't talk about pay or who is doing the work. "If the farmer wants to donate the money which he would spend for labor to the Red Cross that is his business," says a letter from South Dakota, "and I think that is where most of the money will go."

"Shock troops" are cutting and shocking wheat in Warrick County, Ind., also. Volunteer business men, clerks, and laborers in the towns finish their town work and then are taken in automobiles to help the farmers. In one evening 40 men shocked more than 80 acres of wheat.

These forces have been organized through cooperation of farm-help specialists of the United States Department of Agriculture, county agents, county councils of defense, and other bodies.

POISON MAY CONTROL WORST PEST OF AMERICAN COTTON

(*Continued from page 1.*)

acre can be raised on sprayed areas than on the unsprayed plats. The experiments have been conducted under many conditions and for several years, so as to give the method a complete trial before making the results known to the growers. The details are now being published in a department bulletin entitled "Recent Experimental Work in Poisoning Cotton Boll Weevils."

Details Worked Out.

When the experiments were started again last year it was recognized that the former work had merely demonstrated the possibility of poisoning weevils successfully and that many phases of the economical use of the poison still remained to be worked out. A very elaborate series for that season was planned and about 75 tests were started in the neighborhood of Tallulah, each one intended to determine some particular point of importance. The earlier studies had shown that under certain conditions poisoning was profitable, but it was known that any change in these conditions might easily result in a much lower gain if not an actual loss, and it was essential to determine thoroughly the possibilities and limitations of boll-weevil poisoning before the information would be of value to the public. A peculiar combination of seasonal conditions, however, resulted in an almost complete absence of weevil damage in all of the cotton in which tests had been planned. The experiments, therefore, could not be conducted under the desired conditions of heavy weevil infestation. Nevertheless, the results confirmed those of the preceding two years, but still left many gaps in the information essential to outlining a general procedure for weevil poisioning. On one of the heavily infested areas a gain was made of 50 per cent in the sprayed cotton over that grown on the unsprayed area.

A number of experiments were conducted also in the North Delta in Chicot County near Lake Village, Ark., and in Washington County near Scott, Miss. At both of these points a heavier infestation, due to different seasonal conditions, was encountered and pronounced results were obtained from the poison. In every case the experiments were conducted on comparatively small areas, subject to a continual influx of weevils from surrounding untreated cotton, but in spite of this a very definite weevil control resulted from poisoning. The open cotton in every case showed a definite gain to the last row of treatment. The gains per acre ranged from 250 pounds to 1,007 pounds of seed cotton. It is difficult, of course, to estimate how much larger these gains would have been if the entire cuts or entire plantations had been treated and thus the migration of weevils from the unpoisoned cotton prevented. It is clear, however, that the gains secured on the small areas were exceedingly conservative.

A Large Field Test Successful.

A large-scale treatment was made in August last year on a section of an Arkansas plantation. The cotton grew on land of fair quality and was not planted until late May. Weather conditions had retarded the plants greatly and they did not start setting the crop until the latter part of July. About the middle of August a fair crop of bolls had developed, but the plants were large and leafy and the weevils had multiplied so rapidly that a very heavy infestation of weevils was present. Blooming had practically ceased and the weevils had cleaned up the squares so thoroughly that they were attacking the bolls in great numbers and all of the bolls, even to the largest present, were being riddled by punctures. It seemed probable that on one section no bolls would be left to open. It was, of course, too late to attempt to set a new crop by poisoning, but an effort was made to save the bolls then present on the plants.

Treatments were given from August 23 to about September 1 on several hundred acres. Upon counting the squares it was found that about 86 per cent of the squares in the cotton to be poisoned had been weevil-punctured. This cotton was given a single poisoning, and about 10 days later it was found that the weevil infestation in these same cuts or areas had been reduced so that only 36 per cent of the squares were punctured. During the same period the infestation in the adjoining unpoisoned cotton had been increasing steadily. Practically all of the poisoned cuts started blooming again at this time and a number of them reached what is ordinarily termed the "flower-garden" stage of blooming, five to seven blooms per plant on a single day being not at all rare.

Effect of Single Application Pronounced.

In starting the treatment of this large area it had been anticipated that several applications would be necessary to produce the desired result, but the effect of a single application was so pronounced that it seemed unnecessary to repeat it. The weevils had been so reduced that only 36 per cent of the squares were punctured, and although thousands of weevils were being bred out from the squares on the ground or were coming in from other plantations every day, it was still obvious that the weevils would greatly reduce their attacks on the bolls until they had caught up with the squares then present, and that this period would be long enough to allow the bolls to become sufficiently hardened to avoid weevil damage. Owing to the necessity for poisoning considerable areas in this case and to the inability to leave unpoisoned plats as checks, it was, of course, impossible to determine the exact benefit derived from the treatment. Rough comparisons, however, based on yields of surrounding cuts, made it obvious that a considerable gain had been secured and that poisoning had been a very profitable operation.

In the early experiments the triplumbic form of lead arsenate was used, but was not sufficiently effective, and the dihydrogen

form of lead arsenate proved to be a better poison for the work. Later additional tests demonstrated that a high grade of calcium arsenate was still more effective and has the great advantage of being cheaper than lead arsenate. A number of tests were made with various mixtures and dilutions of arsenicals. This work, however, is still in the experimental stage and, according to Mr. Coad, it is difficult to prophesy just what the results will be. It is obvious, however, according to the scientist, that either a dihydrogen-lead-arsenate powder containing not less than 32 per cent of arsenic pentoxid, or a calcium arsenate containing at least 42 per cent of arsenic pentoxid, will produce an effective control if handled properly. It also is expected that it will be possible to dilute these considerably with some cheap carrier such as lime, though this has not been definitely determined. The experiments have shown that a very fine powder is taken up more readily by the dew and held in suspension for the weevils than coarsely powdered chemicals. This physical condition is especially important since the poison is applied in the form of a dust spray.

The time of applying the poison, of course, varies under different conditions. It has proved most effective when applied just as the cotton obviously slackens in blooming, but further work along this line is still to be done. It seems probable that the effective interval between applications is about one week. It is well known that much more effective poisoning with dry dust can be done while the dew is on the plant, as the poison not only clings to the plant better but has much less tendency to drift from the cotton. The most effective time for application, therefore, usually is between 4 p. m. and 9 a. m. Several machines are on the market for dust spraying. In the early experiments a hand dust gun was used with which it was possible to cover 4 to 5 acres a day. In order to cover larger areas, however, a special power machine was developed which will cover nearly 200 acres a day. The department now expects to develop an intermediate type which can be sold cheaply and which will cover 20 to 30 acres a day.

Amount of Poison Needed.

The amount of poison required for application so far has depended more upon the requirements of the machinery used than on the amount necessary for thoroughly dusting the cotton. In general, about 5 pounds an acres have been applied, but this is excessive, and with further improvement in the machinery and the use of the poison with mixtures, such as lime, smaller amounts will be effective. In most of the experiments from three to five applications were made, but the effectiveness of these was considerably reduced by the fact that they were on such small plats. In the large-scale experiment the effect of a single application was as great as was secured from about three applications on a smaller plat. This more efficient work on the large field was due, of course, to the fact that there was practically no migration of weevils from adjoining areas.

The cost of treatment averaged about $1 an acre for each application. This, however, may be reduced considerably when large areas are sprayed and when improved machinery requiring less poison is employed. The cost may be still further reduced when it is possible to mix the poison with other powders, such as lime, which will act as carriers. Further, it will rarely be necessary to poison an entire plantation to control the weevils, since on emerging in the spring they always concentrate near the area in which they passed the winter. The weevils remain rather closely at these points until they have multiplied sufficiently to threaten a shortage in the local food supply.. For this reason a great part of the cotton is not seriously infested with weevils until some time after midseason and then not often until well along in August.

The control measures adopted must depend upon conditions in each plantation, but by concentrating on the more heavily infested cuts just before the weevils become sufficiently abundant to migrate to the remainder of the cotton it will be possible not only directly to benefit the cotton treated, but to protect the remainder of the plantation by preventing the weevil migration. In this way the cost of the treatment for a comparatively few acres will be borne by the benefit derived by the entire plantation.

SOUTH, GROWING MORE FOOD, NOW BEGINS TO FEED ITSELF

(*Continued from page 1.*)

lespedeza. These forage crops are transformed into pork by the direct feeding route.

Leguminous Crops Increasing.

In the census year 1909 only 12,560 acres were planted to velvet beans in the South. Suddenly southern farmers discovered the effectiveness of this plant as forage and feed for live stock and in improving soil. In 1917 the velvet-bean crop covered 4,600,000 acres, all in the South.

Soy beans grew on only 1,629 acres in 1909, but this crop advanced so rapidly in appreciation that its area in 1917 was estimated at half a million acres. Cowpeas, which have been planted in the South for many years, are estimated to have trebled in acreage since 1909.

In North Carolina and Virginia the area planted to peanuts remainded about the same as in 1909, but it has increased sixfold in the Georgia-Florida-Alabama field and eightfold in Texas and adjoining States. The total acreage reported for the census year was below a million. In 1917 it had expanded to more than three and one-fourth millions.

The area of velvet and soy beans and peanuts in 1909 was 884,000 acres. According to estimates of the Bureau of Crop Estimates of the Department of Agriculture, the total for 1917 was 8,350,000 acres, mostly in the South. The acreage of these three legumes has been multiplied by 10 in eight years, and in the same time the area of cowpeas, the number of acres of which has not been ascertained, has trebled.

Benefits to South.

The significance of the change that southern agriculture is undergoing through the enormous expansion of the acreage of these four legumes can be expressed in important results. One is the improvement of a soil much in need of humus and nitrogen, both of which these crops supply. Animal feeds and forage are produced in great quantities in a region that hitherto has brought them in from the North Central States. These crops are meat and milk producers on farms that were consumers of surplus meat and dairy products shipped from northern States. A notable increase of live stock on southern farms diminishes the economic weakness of one-crop farming and means a more self-sustaining and independent agriculture.

Work of County Agents.

The county agents of the Department of Agriculture and the State agricultural colleges have been instrumental not only in introducing the growing of these crops and the raising of live stock, but in teaching farmers how to do it and often how to ship live stock cooperatively.

COTTON IMPORTATION REGULATIONS.

The United States Department of Agriculture has issued in booklet form a compilation of the rules and regulations that have gone out from time to time from the Federal Horticultural Board regarding the importation of cotton into the United States. On April 27, 1915, an order was issued, under the plant-quarantine act, restricting the importation of cotton into the United States. Since that time circulars have been issued dealing with details of the general order. These rules and regulations are not changed. The new publication just presents them in compact form.

Chickens are great destroyers of insects, including many injurious forms, in yard, pasture, and orchard. They utilize, also, many grasses and weeds, and seeds from the same, that would otherwise be of no use.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Nearly 20,000,000 Food Leaflets Distributed.

Nearly 20,000,000 United States Food Leaflets, carrying the message of war-time food saving, briefly told, have been distributed by the United States Department of Agriculture during the last six months. The actual count to May 15 shows that 18,321,340 leaflets have been distributed chiefly through organizations and by demonstrators who come in direct contact with individuals and communities where practical demonstrations carrying out the suggestions made in the leaflets have been given in homes, schools, war kitchens, and before women's and girls' clubs in rural and urban districts, farm bureaus, and so on. They have also been distributed through public libraries. Manufacturers and other dealers have purchased them in large quantities for distribution among their employees or customers. They have been translated in foreign languages and distributed among foreign-speaking people in many States. The leaflets were prepared by specialists of the Department of Agriculture and the Food Administration, and the latter also has distributed many millions of them.

Solving Illinois' Farm-Labor Problem.

Illinois has enlisted more than 50,000 men from stores, banks, offices and non-essential industries to insure the harvesting of big war crops. These workers are expected to do much in solving the Illinois problem of producing 11,000,000 acres of corn and at the same time harvesting 2,000,000 acres of wheat, 5,000,000 acres of oats, 3,000,000 acres of hay, and large acreages of truck fruit and other crops. The United States Department of Agriculture, working with the labor division of the Illinois Council of Defense and through county agents, county farm bureaus, and business men's organizations throughout the State, has aimed to make sure that there will be no loss whatever in one of the largest plantings in Illinois' history.

Farm Tractors Relieve Labor Situation.

Farm tractors are playing an important part in relieving the labor situation on the farms, farm labor specialists of the United States Department of Agriculture say. In Pennsylvania more than 2,800 tractors are in use. Through the Public Safety Commission tractors have been bought and are equipped with an operator and mechanic, and placed in communities. The farmers guarantee a reasonable acreage for plowing and pay from $3.50 to $5 an acre for the breaking of the land. This cooperation, according to the farm labor specialists, has meant much to small farmers who are unable to purchase tractors for their individual use. It also saves them the large amount of time and labor required in breaking land, which is the slowest and most expensive operation on the farm.

Women as Assistants in Federal Meat Inspection.

Inspectors in charge of meat inspection have been authorized by the Bureau of Animal Industry, United States Department of Agriculture, to select women as "assistants in meat inspection" at all stations where men are not available and it is possible to utilize the services of women. Because of war conditions the bureau is experiencing difficulty in obtaining men as lay inspectors and at a number of the larger stations women already have been employed as assistants. "It has been demonstrated," says a Bureau of Animal Industry statement, "that they are able to do efficient work in supervising the shipment and the receipt of products, labeling, branding, assisting in the sausage, canning and oleo departments, and other similar duties."

Work to Control Sweet-Potato Weevil.

A force of experts to investigate the sweet-potato weevil, work toward its control and if possible its eradication, has been organized by the Bureau of Entomology, United States Department of Agriculture. Field workers and inspectors, to act in cooperation with state forces, have been placed in Florida, Georgia, Alabama, Louisiana, Mississippi, and Texas.

Live Stock Associations Listed.

A list of 340 National and State live-stock and poultry associations, with the names of the president and secretary and their addresses, has been compiled by the Bureau of Animal Industry of the United States Department of Agriculture and published as Yearbook Separate No. 742. During the last few years numerous requests from many sources have been received by the Bureau for lists of National and State organizations. This publication has been issued to furnish such information. It will be sent free on request.

Hearing on Stock Yards Licensing.

At the suggestion of Secretary Houston and at the invitation of the Chief of the Bureau of Markets the subcommittee on live stock of the National Advisory Agricultural Committee met June 28 with representatives of the Department of Agriculture to give suggestions relative to the tentative draft of the proposed rules and regulations governing the licensing of stock yards under the President's proclamation of June 17. Those present at the meeting included: Henry C. Stuart, Virginia; Marion Sansom, Texas; W. L. Brown, Kansas; John Grattan, Colorado; Eugene Funk, Illinois; N. H. Gentry, Missouri; C. W. Hunt, Iowa; Charles J. Brand and L. D. Hall, of Washington, D. C.

Farm Congress to Pay Premiums in "Baby Bonds."

The International Farm Congress has decided to pay 50 per cent of the premiums to be won at the International Soil Products Exposition, at Kansas City, October 16-26, in War Savings Stamps and 50 per cent in cash. The only exceptions are premiums won by exhibitors residing outside the United States.

To Design Combination Heater and Refrigerator Cars.

Experiments are being made by the Bureau of Markets to determine proper designs for combination heater and refrigerator cars used in the shipment of perishables. The heater equipment installed in these cars is intended to protect perishable products against freezing in winter.

Save and Sell Straw.

Keep fire away from straw stacks and sell the straw for the use of the Army is the advice of the grain and hay marketing specialists of the Bureau of Markets, who point out the wastefulness of burning it, especially in view of the demand for it at the many Army camps. It is suggested that all straw be baled as soon after thrashing as possible. If assistance in marketing straw is needed, the grain and hay reporting service of the Bureau of Markets is ready to help.

Storage Houses to Save Sweet Potatoes.

Because about 50 per cent of the sweet-potato crop stored in pits never reaches the consumer, the construction of proper storage houses is being urged upon the farmers of the South by specialists of the Bureau of Markets. Designs for houses that will save this annual waste of millions of bushels of potatoes are being furnished to growers, and it is stated that the sweet potatoes saved the first year will pay for the cost of constructing these storage houses.

Expediting Seed Imports.

To inform seedsmen of the best methods of importing seeds, the Seeds Stocks Committee

of the United States Department of Agriculture has taken up with the War Trade Board and the United States Shipping Board the steps necessary to obtain Government assistance promptly. An import license is required for the importation of seeds. Application blanks for import licenses may be obtained from the Bureau of Imports, War Trade Board, Washington, D. C., or at branch offices of the War Trade Board in various cities. The Seed Stocks Committee is to advise with the War Trade Board as to the importance of seeds proposed to be imported in cases of embargoes by foreign countries.

Boys' and Girls' Bread Clubs Save Wheat.

Quick breads are being featured as war service by leaders of boys' and girls' club work in the North and West. More than 12,000 children registered in the bread clubs under these extension workers are learning how to save wheat and at the same time make light and palatable breads. Quick breads are especially suited to the needs of club members, for they are quickly and easily made and save a large proportion of wheat flour. Members are also taught the use of 50 per cent and more wheat substitutes in bread making, but are urged to concentrate their efforts on the making of good quick breads.

Army of Little Sugar Savers.

Boy and girl club members in the North and West are enlisting in a sugar conservation program that will be of considerable importance in helping to make good the season's supply. In addition to canning with no sugar or with a very small proportion of it, members are being taught to make sweet sirups from sugar beets, quinces, and apples; to use corn sirup in canning, and corn sirup molasses, maple sirup, and honey in all general cooking; to dry fruits of all kinds by home methods; to make sugarless candies and confections; and to go without many, if not all, sugar luxuries. Because of the large number of boys' and girls' clubs a large saving of sugar can be made by this one organization.

Teach Canning Without Sugar.

To encourage the saving of fruit and vegetables at a time when the supply of sugar is limited, a program for canning without sugar is being carried out this season by the United States Department of Agriculture and the State agricultural colleges through the boys' and girls' clubs of the 33 Northern and Western States. Fruits are put up in boiling water instead of sirup; unsweetened products are canned for pie filling; fruits are made into sirup, which can be used in many ways in place of sugar; and fruit juices are also preserved by sterilizing them to be used later for making jellies, jams, and marmalades. The juices are also for seasoning in general cooking and for making beverages. Sugar-beet clubs have been organized among the boys and girls in many localities, and instructions are to be given in the making and use of homemade sugar-beet sirup.

Dropping Saturday Holiday in South.

Results so far achieved by the Uncle Sam Saturday Service League, organized among Negroes of the South by agricultural extension workers, indicate that the old custom in the South of observing Saturday or a part of it as a holiday among farm workers soon will be largely abandoned. Six thousand active members in the league were obtained from eight thousand registry cards distributed in Alabama. Resolutions indorsing the plan were adopted by the Negro agricultural demonstration agents of Oklahoma and by farmers and teachers attending a short course of instruction at the colored agricultural and mechanical university, Langston, Okla. The plan is being tried in North Carolina, Tennessee, and Texas, and reports of progress from these and other sections in speeding up agricultural production in the South are being received by the States Relations Service, United States Department of Agriculture.

Making Nitrogen from Air.

The largest experimental plant in the United States for the manufacture of fixed nitrogen from the air, with the exception of the ones now being constructed for the War Department, is in operation at the United States Department of Agriculture Experiment Farm, Arlington, Va. At this plant the nitrogen from the air is combined with hydrogen to form ammonia which can be used in the manufacture of explosives and fertilizer. Experiments are now being conducted at this plant by the Bureau of Soils with a view to increase the efficiency of the process. The War Department is cooperating in this work. What is known as the Haber process of nitrogen fixation is being used. This process involves the production of ammonia from hydrogen and nitrogen. The two gases are mixed in the proper proportions, put under high pressure, subjected to intense heat, and passed over spongy iron, whereupon a portion of the mixture combines to form ammonia.

Plan for Poultry Increases.

Further plans for carrying out the increased poultry production campaign were made at conferences called by the Poultry Division in Kansas City, Omaha, Chicago, New Orleans, and Los Angeles. These conferences were attended by the Department's extension poultrymen. Arrangements were made to increase and encourage local poultry organizations and individual poultry producers through the appointment of local leaders in various communities. It is believed that this plan will greatly extend the operations of the department's field men.

All Crops to be Saved in Northeastern States.

"The indications are that all crops will be normally harvested and saved" was the conclusion reached at the Farm Labor Conference held in New York June 24–25 by the United States Department of Agriculture. Farm help specialists in the various eastern States reported that people of towns and cities were responding in large numbers to the call for help to assist farmers. Manufacturers have released a number of employees who have had farm experience for a period of from two to four weeks to work in the harvest fields. Many women are assisting on truck and fruit farms. Plans were completed at the conference to utilize every county agent, farm bureau, and business men's organization to unite all forces to assist farmers and guarantee the saving of all food products this year.

Boys Trained for Farm Work.

Training courses for boys conducted by the agricultural colleges in Pennsylvania, Delaware, Maine, Massachusetts, and other States, in cooperation with farm help specialists of the United States Department of Agriculture, State councils of defense, and public safety commissions, have resulted in placing many hundreds of boys on farms. In these courses city boys have been shown how to harness horses, adjust machinery, feed and milk cows, hoe and cultivate crops, and do many other simple but fundamental farm operations. The result has been the instilling in the boys a liking for farm work and a confidence on the part of the farmers in boy labor.

Licenses for Farm Equipment Retailers.

The Department of Agriculture has received many inquiries from retailers dealing in farm implements, asking if they are required to obtain a license as a result of President Wilson's recent [illegible]mation establishing a licensing system [illegible] the farm equipment trade. Officials of the Department of Agriculture say that if the business is retail exclusively, and the gross annual sales (including all lines of merchandise as well as farm equipment) do not exceed $100,000, a Federal license is not required. However, if the gross annual sales as a retailer exceed $100,000, a license is required and the necessary application blanks should be obtained immediately by applying to the Department of Agriculture or the License Division of the United States Food Administration, Washington, D. C.

In order to leave available for the forces overseas as large a proportion as possible of the output of cured and compact meats, it is desirable that there be a decided increase in both home production and home consumption of white meats such as poultry.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. V JULY 24, 1918 No. 51

MISSOURI FARMERS INSISTED ON BEING SHOWN; THEY WERE

Town Men Wanted to Help Harvest, But Had to Start Out Like Burglars

Skeptic Amazed When He Found His Wheat Shocked; Then Business Picked Up for Rejected and Dejected Volunteers

It's an odd sort of situation for men who want to work to be denied that privilege, and to be forced to sneak to their jobs and work surreptitiously, nocturnally, nightriderishly. Yes, it's odd, except in the case of burglars and highwaymen—and the men who adorn this little tale were merely patriotic business men of Nevada, Mo., and far removed in temperament and practice from the ways of outlaws.

It happened in this wise: Despite all the persistence with which the United States Department of Agriculture has explained the farm-labor situation, the necessity for town volunteers for farm work and for the acceptance by farmers of such emergency help, despite all the preliminary campaigning, there were some farmers here and there, when the harvest came on this summer, who continued firm in their prejudice against the proposal of men from the towns for emergency farm work.

"In" and "From" Missouri.

There were some farmers of this kind around Nevada, Mo. The wheat was ripe for the harvest. The town men had organized for farm work and were eager for it, because they knew it was patriotic service. But lo! the farmers of the county—or some of them—declined emphatically to have anything to do with the proposition; they wanted no soft town men coming out to their farms; indeed, some of them most positively forbade it.

"And why?" insisted the United States Department of Agriculture's farm-labor representative.

"No good, these town dudes. They can't do the work," said the farmers.

"But you don't know whether they can do the work or not; you haven't tried 'em."

"Not goner try 'em. They can't do it."

Meanwhile, by reason of unusual weather the wheat ripened all at once instead of spreading out over a period of a week or so. The farmers were cutting just as fast as they could, but they couldn't get the fields shocked. In town the volunteers were chafing. They knew the possible loss if the grain wasn't shocked. They knew they could do the work, and they wanted to do it. They called a special meeting at the chamber of commerce.

"There's just one thing to do," said the leader of the local farm-labor movement. "That's to go out to these farms and do the work anyhow! Once the farmers see we *can* do it they'll be running after us! But we've got to take the bit in our teeth and show 'em! We'll start out late this after-

(*Continued on page 5.*)

County Farm Bureau Praised as Great Helper to Food Production

"The county farm bureau is one of the best agencies thus far devised for insuring interest and cooperation of farmers in the great work of food production so necessary to the success of our arms."

This statement was made in telegrams of appreciation sent by Clarence Ousley, Acting Secretary of Agriculture, to farmers in two Montana counties who had organized for war farming.

From Chinook, Mont., came the following telegram to the Secretary of Agriculture:

"Having completed the organization of the Blaine County Farm Bureau, 550 Blaine County farmers pledge to you, as the farmers' representative on the President's Cabinet, their united support as an organization to do their utmost to help win the war."

The following telegram came from Glasgow, Mont.:

"Farm bureau organization of Valley County completed with 325 members; enthusiastic to cooperate with Department of Agriculture in supporting Food Administration to the utmost. Drought conditions prevail but farmers' spirit unshaken. With better methods of farming, learned through the Farm Bureau, agricultural conditions will improve."

ALL MUST HELP IN CLEARING COMMUNITY OF RODENT PESTS

Cooperation Urged As Essential In Saving Some of Huge Animal Loss

Bounty Money, If Put To Wise Use, Would Liberate Many Counties and Make Further Outlay Unnecessary

Systematic and organized campaigns, in which the entire community is interested, are suggested as means of successfully exterminating injurious rodent pests on farms by the Bureau of Biological Survey of the United States Department of Agriculture. There are about 750 forms of rodents inhabiting the United States, and the annual loss they cause in food and feed crops is estimated at fully $300,000,000.

They feed upon crops in the field and in storage, in some cases destroying grass land so completely that erosion follows. In the irrigated sections of the West some species burrow through the dikes, releasing the water and flooding the crops. Methods of exterminating these pests by trapping and poisoning, which the individual farmer as well as the community can employ, are told in Farmers' Bulletin 932, recently published by the United States Department of Agriculture.

All Must Join Work.

Any farmer, by care and industry, may free his premises of harmful rodents, but he is helpless to prevent an early recurrence of the trouble unless he can secure the active cooperation of his neighbors. The Department of Agriculture urges, therefore, that whenever possible the destruction of these pests be a community undertaking. In the past, individual efforts, often supplemented by the payment of bounties by State, county, or township, have been only partially successful in reducing rodent depredations. In many western counties the amount paid out in a single year for bounties on pocket gophers and ground

(*Continued on page 6.*)

KEEP CANNING, SUGAR OR NO SUGAR

Department of Agriculture Specialists Explain How to Preserve When Sweets Are Scarce

"Keep canning, sugar or no sugar," say specialists of the United States Department of Agriculture. If you can't get enough sugar for home canning put up your fruit without it. The products will keep perfectly until a time when more sugar is available or until a sugar substitute program has been worked out. Fruits put up in this way are excellent for pie-filling and salads and may be used in desserts, puddings, ices, and punches.

In canning fruit without sugar, can the product the day it is picked. Cull, stem, seed, and clean fruit by placing in strainer and pouring cold water over it. Pack the product carefully in hot glass jars or tin cans until full. Use a tablespoon, wooden ladle, or table knife for packing purposes. Pour boiling hot water over the product in the hot jar. Place rubbers and caps in position, not tight. If using tin cans, seal completely. Place in the sterilizer vat, or canner, and sterilize for the length of time given below according to the particular type of outfit used:

	Minutes.
Hot-water bath, homemade or commercial	30
Water seal, 214°	20
5 pounds steam pressure	12
10 pounds steam pressure	10

After sterilizing remove the filled containers. Seal jars; invert to cool and test the joints. Wrap in paper to prevent bleaching and store in a dry, cool place. If tin cans are used it will be found advantageous to plunge them into cold water immediately after sterilization to cool them quickly.

Homemade Fruit Juices, This Way, Can Go Sugarless Too

Homemade fruit juices take no sugar and may be used during the winter months in a variety of ways, according to specialists of the United States Department of Agriculture. One important use for fruit juices is in the making of jellies at a time of year when sugar or its substitutes may be more plentiful and when it is more convenient to do the work. In this way freshly made jellies may be available all through the winter.

Fruit juice may be pressed out of fruit by means of a cider press, special fruit press, or other improvised presses; then heated in an acid-proof kettle up to 110° F. The fruit juice may then be poured into ordinary hot jars, hot bottles, or tin cans, and handled by the same directions as those for canning of fruit itself. If poured into miscellaneous bottles, it is suggested that the fruit juice be sterilized as follows:

Make a cotton stopper and press into the neck of the bottle and leave during the sterilization period. Set bottles in boiling hot water up to the neck of the bottle, sterilize the fruit juice for 40 minutes at a temperature of 165° F. Remove the product, press cork in top over cotton stopper immediately. If the cork fits well, no paraffin need be used. If a poor cork, it may be necessary to dip the cork in a melted solution of wax or paraffin. Fruit juices and apple cider when handled in this way will not "flatten in taste" and will keep fresh for future use.

Use Concentrated Sweetness of Fruits Instead of Sugar

Sweet fruit sirups require no sugar in the making and may be used in place of sugar in several ways in general cooking, according to specialists of the United States Department of Agriculture. Apple sirup is especially good for cakes, hot biscuits, candies, and seasoning.

To make it add 5 ounces of powdered calcium carbonate to 7 gallons of apple cider. Powdered calcium carbonate (carbonate of lime) or, to give it its common name, precipitated chalk, is low-priced and harmless. Boil the mixture in a kettle or vat vigorously for five minutes. Pour the liquid into vessels, preferably glass jars or pitchers; allow to stand six or eight hours, or until perfectly clear. Pour the clear liquid into a preserving kettle. Do not allow sediment at bottom to enter. Add to the clear liquid one level teaspoonful of lime carbonate and stir thoroughly. The process is completed by boiling down rapidly to a clear liquid. Use density gauge or candy thermometer and bring the temperature up to 220° F. If a thermometer is not available, boil until bulk is reduced to one-seventh of the original volume. To determine whether the sirup is cooked enough test as for candy—by pouring a little into cold water. If boiled enough it should have the consistency of maple sirup. It should not be cooked long enough to harden like candy when tested.

When the test shows that the sirup has been cooked enough pour it into fruit jars, pitchers, etc., and allow it to cool slowly. Slow cooling is important, as otherwise the suspended matter will not settle properly and the sirup will be cloudy.

A good way to insure slow cooling is to stand the vessels, full of sirup, in a bucket or a wash boiler of hot water or to place them in a fireless cooker. The white sediment which settles out during cooking is called "malate of lime" and is a harmless compound of lime with the natural acid of the apple. When the sirup is cooled it should be stored in fruit jars, bottles, or jugs and crocks. Place the rubber and cap or cotton stopper or cork in position and tighten. Place the container in boiling hot water and sterilize for the length of time given below for the particular type of outfit used:

	Minutes.
Water bath, homemade or commercial	15
Water seal, 214°	10
5 pounds steam pressure	8
10 pounds steam pressure	5

Remove jars and tighten covers. Invert to cool, and test the joints. Store for future use. This recipe is for making sirup primarily for home consumption. If the product is to be sold, legal requirements as to labeling should be ascertained and complied with.

Save the "Makins" for Apple Pies—Add the Sugar Later

Plenty of apple pies are guaranteed for Americans next winter in spite of the sugar shortage. Housewives are going to save the windfalls in piefilling canned without sugar, according to specialists of the United States Department of Agriculture. Apples canned by this method will be available later on when the sugar may be added or pies may be sweetened with sirups and other sugar substitutes.

In canning apples for pie filling slice them immediately after paring into slightly salted cold water. Pack the product carefully in hot glass jars or tin cans until full. Use a tablespoon, wooden ladle, or table knife for packing purposes. Pour boiling hot water over the product in the hot jar. Place rubbers and caps in position, not tight. If using tin cans, seal completely. Place in the sterilizer, vat, or canner, and sterilize for the length of time given below according to the particular type of outfit used:

	Minutes.
Hot-water bath, homemade or commercial	30
Water seal, 214°	20
5 pounds steam pressure	12
10 pounds steam pressure	10

After sterilizing remove the filled containers. Seal jars; invert to cool and test

the joints. Wrap in paper to prevent bleaching and store in a dry, cool place. If tin cans are used it will be found advantageous to plunge them into cold water immediately after sterilization to cool them quickly.

Corn Sirup Can Take Sugar's Place in Strongly Flavored Fruits

Corn sirup may be used in canning and in making jellies, jams, and marmalades and fruit butters, according to specialists of the United States Department of Agriculture. Varying amounts of corn sirup are used with sugar. The sirup gives a modified flavor to products. So it should be tried out in small quantities at first to suit the family taste. It combines most satisfactorily with strong flavored fruits such as pineapple and cherries. The amount used must be determined by the kind of fruit and the strength of the sirup.

More Food-Drying Plants Needed, But Avoid Irresponsible Schemes

The United States Department of Agriculture and the United States Food Administration agree that establishment of more commercial plants for the drying of fruits and vegetables is highly desirable in the present emergency. Warning is given, however, against poor products and stock-selling schemes. Many inquiries regarding the extension of the drying industry; which is in its infancy in this country, are being received.

It is essential from the beginning to assure products of excellent quality, Government officials point out. Processes that do not give such products will lead to loss of capital and local discouragement and will retard the general movement.

The public is advised to beware of irresponsible and unscrupulous stock-selling schemes. Establishment of drying plants and manufacture of high-grade products require skill and experience, absence of which may damage the industry through flooding the market with inferior products.

Drying when properly done is recognized as an efficient means of conserving food. It requires no sugar. It is reported that the German Government has fostered the drying industry in that country.

The increase in poultry production is sought, not only for this year alone, but for the entire duration of the war.

The main points to be kept in mind in stacking peanuts are to keep them off the ground, to protect them from rains, and to cure them slowly.

Children, in Essay Contest, Tell How to Banish Cattle Fever Tick

How children are interested in the campaign to banish the cattle-fever tick from the United States was shown in a recent prize essay contest among the school children in Bowie County, Tex. Interest was stimulated by prizes offered by the Texarkana Chamber of Commerce, members of which are strong advocates of tick eradication and appreciate the need of lining up all ages in support of the campaign. Similar essay contests are being planned in a number of other communities where tick eradication is in progress.

Of the large number of essays submitted in the Bowie County contest, that written by Miss Mabel Hatcher was judged to be the best and the writer received the first prize. Her essay follows:

"Tick Eradication.

"We have a pest called the cattle-fever tick. The exact origin of this pest is not known. It is, however, quite probable that they were introduced into our country with the importations of cattle by the Spaniards during the early colonization of Mexico and the Southern States. Since then they have spread rapidly. At first the fully developed female lays from 1,500 to 3,000 eggs. These eggs are of a waxy brown in appearance. The time required for the development of these seed ticks varies from 13 days to 6 weeks. Much depends on the moisture, temperature, and soil.

"The seed ticks are very small and six-legged parasites and resemble the egg in color. They are about three-sixteenths of an inch in size. These crawl about in large numbers, forming an ambush on grass blades, shrubs or other convenient plants and here await the approach of a horse or cow. After fastening themselves to the cow they draw the blood from her. After living thus for one week they shed their covering. Then we have an eight-legged tick. The female tick is much larger than the male. The male after satisfying his greedy appetite falls off. The egg-laying tick, who had by this time turned an olive green, drops off also to lay her eggs in the grass, and thus start a new tick family. These ticks having completed their short but harmful lives soon die.

"Perhaps we have never thought of the harm and continual loss they cause our country year after year. Yes; they are very harmful indeed, but only to cattle. They, the cattle, are infected with the terrible tick fever by being bitten by the fever tick, and death is certain to follow. Therefore you lose a fine cow when you could have prevented it. You wish to sell the hide after you lose the cow, but find that it too has been damaged, therefore, because of the roughness of the hide, you do not get as high a price as you otherwise would have gotten.

"This loss is preventable. Why not prevent it? The cost is not great either. Thanks to the Department of Agriculture we now have a medicine which will kill all ticks which are wet with it. The best and easiest way to dip the tick is to dig a long, deep trench—line this with concrete and cement so as to hold water. This is a dipping vat. Fill this with water and put in the arsenic and other necessary medicine. The cattle are then made to swim through this arsenical dipping solution. This kills the tick without injury to the cattle.

"The cattle are driven back to the pasture and there become traps for other ticks. In two weeks longer they are again dipped. This dipping is kept up all spring and summer. The ticks are then destroyed. When your country is tick free do not allow any ticky cattle to be shipped into your tick-free country. Tick eradication is just one of the many ways in which the farmers can show their patriotism and serve their country well. If you can't carry a gun you can at least eradicate the tick and thus aid in the production of meat for our boys who are fighting so gallantly in the trenches for us and their country."

HEAVY TOLL TO GRAIN SMUTS

It would doubtless be safe to say that we are paying out annually as a price for what amounts to national negligence grain enough to fill an elevator of 90,000,000 bushels capacity. This vast and really inexcusable toll is exacted by preventable smuts. It is a waste of sufficient wheat to supply our allies with 4,000,000 barrels of flour, and oats enough to feed 1,100,000 horses for a year. The simple and inexpensive formaldehyde treatment of seed will save most of this loss.

GET 120 EGGS A YEAR

The average novice can reasonably expect to get an average of at least 10 dozen eggs per hen per year from his small flock in the back yard. There is nothing difficult in the care of the small flock if the important things are done at the right time and in the right way, and the system involves nothing too hard for a child given proper directions.

FARMERS DEPEND ON CITIES AS WAR TAKES HARVEST HELP

Good Work in Central States Cited to Northwest Wheat Growers

Assistant Secretary Ousley Says Towns Must Aid in Gathering Food. No Halt in July Draft, General Crowder Announces

"The military program will not permit of delay in filling the July call for drafted men."

This is the reply of Provost Marshal Gen. Crowder to Clarence Ousley, Assistant Secretary of Agriculture, in charge of farm labor activities, who took up with Gen. Crowder the matter of postponing the call in the spring-wheat sections of the Northwest where wheat is ready for harvest. Farmers and farm organizations in that region had appealed to the Department of Agriculture for aid.

Before placing the July call, the Provost Marshal General's office canvassed the situation thoroughly. To relieve agricultural conditions in the spring-wheat sections, the call was placed as late in the month as possible. Entrainment in this section begins July 22, whereas other States were required to entrain their men July 5 and July 15.

Good Example Cited.

"Farmers in those sections which are confronted with the problem of harvesting wheat at a time when some of their help will be called to the colors by the July draft should receive inspiration from the wheat growers of the Central States," said Mr. Ousley. "In June the farmers of that section faced the same situation, yet every acre of grain was cut and shocked. City people with farm experience responded to the call for help and were organized into 'shock troops' and went into the harvest fields. Illinois and Kansas, two great wheat-producing States, each registered 40,000 city men for farm work. From Ohio to Iowa, boys responded loyally and farmers found them willing and valuable helpers.

"Farmers in many sections of New York State are dependent entirely on city boys to tend and harvest their crops. Most of the boys doing farm work in this State are from New York City and have volunteered to spend the summer on farms to help the Nation produce food. They have been organized into groups of from 40 to 60, in charge of a supervisor, and are assigned by him to farmers in the community. In many States classes of boys have been trained at the State agricultural colleges to do farm work. In Illinois an effort was made to place boys from Chicago on the farms—three in each township as a trial—and the call for these youthful helpers so far has been greater than the supply.

Town Men Prove Farm Worth.

"At first the farmers were skeptical of the ability of town men to do the work," said Mr. Ousley, "but the experience of the first few days showed that the city men who volunteered were men who had come from the farms and they had not forgotten how to handle wheat."

"The farmers and the Lord have made the crops," Mr. Ousley continued. "They are bigger than the farmers can handle. It is up to the cities to gather the food."

GIVES RESULTS OF PHYSICAL TESTS OF ROAD-BUILDING ROCK

Results in physical tests in 1916 and 1917 of road-building rock are given in Bulletin 670, recently issued by the United States Department of Agriculture. This bulletin supersedes the department's Bulletin 537, and supplements Bulletin 370 which gave the results of the more common physical tests of approximately 3,650 road-building rocks examined prior to January 1, 1916. The rock tested came from most of the States. In a number of cases, in addition to other tests, the crushing strength of the rock also is given. The bulletin also contains a complete record of all the crushing strength tests made by the office prior to January 1, 1916.

The average crushing strength of granites and gneisses lies between 20,000 and 21,000 pounds per square inch, according to data in the bulletin, and the average crushing strength of limestones and dolomites is between 18,000 and 19,000 pounds per square inch.

Granites, gneisses, schists, sandstones, and quartzites should not in general be used in the wearing course of water-bound macadam roads, it is stated, and shales and slate should never be used in this manner. Cementing value tests therefore have been discontinued on these materials.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended July 20, 1918:

Hog Pastures for the Southern States. Farmers' Bulletin 951.

Breeds of Light Horses. Farmers' Bulletin 952.

Tractor Experience in Illinois: A Study of the Farm Tractor Under Corn-Belt Conditions. Farmers' Bulletin 963.

Farm Household Accounts. Farmers' Bulletin 964.

Purple Vetch. Farmers' Bulletin 967.

The Control of the Clover-Flower Midge. Farmers' Bulletin 971.

How to Use Sorghum Grain. Farmers' Bulletin 972.

Hay Caps. Farmers' Bulletin 977.

Commercial Bordeaux Mixtures: How to Calculate Their Values. Farmers' Bulletin 994.

Loading and Transporting Western Cantaloupes. Bureau of Markets Doc. 10.

Federal Aid to Highways. Yearbook Separate 739.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Farmer-Engineer Administers Farm Machinery Regulations

Junius F. Cook, recently named by Secretary Houston to be an assistant to the Secretary of Agriculture in the administration of the regulations prescribed by the President for the licensing of the farm implements industry under the food control act, has been a practical farmer in the United States and a mechanical engineer in this country, England, and South Africa.

Mr. Cook was born at Whitney Point, N. Y. He was brought up on a farm and was graduated in 1893 from Cornell University with the degree of mechanical engineer. He was employed at Dickson Manufacturing Co.'s Engine and Machine Works, Scranton, Pa., as an erection foreman, and in conducting special investigational work on large triple-expansion electric engines for New York City. Later he was superintending engineer for Edward Chester & Co., London, England, inspecting all machinery handled by this company from England and supervising all orders for the company from America. He acted as chief engineer for Fraser & Chalmers (Ltd.) of Johannesburg, South Africa, and was responsible for estimates of costs and profits on machinery and equipment for South Africa handled from many of the largest companies in England, Chicago, and New York. He served as consulting mechanical engineer for companies controlling large gold and coal mines, being in charge of matters involving equipment and costs and responsible for the efficiency of all plant machinery. He also rendered service for the Government of South Africa in important engineering undertakings.

Recently, and until his appointment as assistant to the Secretary of Agriculture, Mr. Cook was engaged in farming in New York State, and at the same time was doing some special work at Cornell University. He is a member of the American Society of Mechanical Engineers.

Twilight Labor Squads Help in the Harvest of Farm Crops in Illinois

The city firemen of Springfield, Ill., have unanimously volunteered for farm work, each agreeing to spend his two weeks' vacation working on farms in the county where he may be needed. In Springfield, as throughout Illinois, Missouri, and, indeed, almost every State of the Union, there is an enthusiastic response to the United States Department of Agriculture's program of town volunteers for emergency farm work. Reports reaching the department recently from a number of towns in Missouri and Illinois show that many of the town volunteers turn their wages over to the Red Cross. All over the Middle West the wheat harvest is being handled, the crops are being saved, and very largely, in each section, by the patriotic town and city people who are turning out to the fields to do this war work.

In one Illinois county "twilight labor squads" of town volunteers have been organized. All the town men who can possibly do so are going to the fields for full-day work. In addition each town has organized the "twilight squads" composed of men who must be in town most of the day. These squads leave town in automobiles during the afternoon and get to the fields in time for several hours of daylight work, and perhaps several hours more of moonlight work. The "twilight squads" have been used altogether for shocking the cut wheat, and the personnel is so adjusted that each squad contains at least two and sometimes more men who know how to shock. These outfits operate within a radius of 10 or 15 miles from the town.

At Petersburg, Ill., the city marshal happens to be an expert machine man. Furthermore, he is a peace officer of vision. He wants to help keep law and order in all the world, not merely in Petersburg, Ill., so, with the mayor's permission, he has been spending each afternoon going over the county and examining the farmers' machinery and seeing that repairs and adjustments are made if needed. During the cutting season the city placed an automobile at his disposal, and he spent his entire time repairing binders for the farmers.

From one end of the land to the other such stories as these are coming to the United States Department of Agriculture—stories of the determination which in every part of the Nation inspires the people to get out in the fields and work and in every possible way to do whatever will help, however indirectly, to the winning of the war.

MISSOURI FARMERS INSISTED ON BEING SHOWN; THEY WERE

(Continued from page 1.)

noon, and to-night we'll shock old man Blank's field by moonlight—if he doesn't wake up and run us off with a shotgun!—and to-morrow we'll work on other fields and then the word will get out that we're doing good work and the farmers in this county will be begging us to come!"

Advancing Under Darkness.

So the town volunteers piled into autos and trucks and started upon their "work-anyhow" expedition that night. They shocked old man Blank's 15 acres—he didn't wake up and bother them with a barrage—and the next day they started out openly, not shunning the eye of man, and without so much as a by-your-leave they simply went to work shocking wheat in every field they came to without fear or favor!

Business began to pick up on the rural telephones, and the party lines did a rushing business. Women on the farms near town, where the volunteers struck first, phoned their more distant friends, and presently the entire county knew what was being done, and knew that it was being done well. Meanwhile old man Blank had called up the chamber of commerce. He was just a bit dazed. He was uncertain whether this was a miracle, or only a hallucination, or just plain, brazen interference by the soft town dudes. The secretary, quite cheerily, told him it was the latter.

"You see," he added, "you've acted so grouchy that we wouldn't care if you did lose your crop—if *you* were the only one that suffered. But we're thinking about our Missouri boys who are fighting in France. We don't intend for them to be short of food. Yes, Mr. Blank, this was just a plain, unvarnished case of butting into your business! And please don't thank us! We didn't do it for you! We did it for Uncle Sam! Good-by!"

Missouri Has Been "Shown."

That day autos and trucks loaded with town men left Nevada, going on every country road leading from the town; and the next day, and the day after and the day after that each machine was loaded to capacity with town men, and they just took the fields as they came to them, and shocked the cut wheat and went on to the next. They cleaned up the county; and if you want to find out whether the United States Department of Agriculture's "dope" about town volunteers for emergency farm work is practicable, make a few inquiries in the Nevada, Mo., country.

BOOSTING ONE MAN'S WORK IS TRACTOR'S CHIEF ADVANTAGE

Not Safe to Expect Big Cut in Cost of Farming, Investigation Shows

Conclusions Apply to Practically All Improved Agricultural Machinery—Results Should Govern

The advantage of the tractor, like that of most other improved farm machinery, lies not so much in reducing the cost of performing a unit of work as in the fact that it permits one man to do considerably more work in a given time, according to Farmers' Bulletin 963 of the United States Department of Agriculture, which is a report of the experiences of over 600 farm-tractor owners on representative corn-belt farms in Illinois collected during 1917 and the spring of 1918.

This has been true of practically all improved farm machines, the bulletin explains. Even the grain binder, generally considered as one of the greatest agricultural inventions of the century, which has increased about eightfold the acreage one man could handle, has not resulted in decreasing materially the cost of producing grain.

Don't Expect Cost Reduction.

Men who hope to reduce greatly the cost of farming operations by the purchase of a tractor should bear these facts in mind, the Federal specialists point out. Judging by the experience of tractor users, it is not safe to expect any material reduction in the cost of farm operations per acre through the use of the tractor, but it is safe to expect to be able to increase the crop acreage to a very considerable extent, and, at the same time, the amount of crops which one man can raise.

Furthermore, it should be remembered that the cost of doing the work with a tractor in most cases can not be directly compared with the cost of doing it with horses, since on farms where tractors are used a number of horses generally are retained, and any comparison, therefore, must be made between the cost of operating the farm with horses alone and the cost of operating with the tractor and a certain number of horses.

Horses Part of Power Plant.

Not infrequently horses stand idle while the tractor is being used for field work, because there is not sufficient help available to use them at the same time, and in such cases part of the cost of their maintenance must be considered when figuring the cost of farm operations, since they are as much

a part of the farm power plant as is the tractor.

Not only should the relative expense of operation with the two methods be considered, but also the relative results. The increased crop acreage and consequent increase in incomes which the purchase of the tractor will often make possible may much more than offset a slight increase in the operating expenses of the farm.

ALL MUST HELP IN CLEARING COMMUNITY OF RODENT PESTS

(Continued from page 1.)

squirrels would, if wisely expended in poisoning operations such as have been practiced under Government supervision on public lands, secure the destruction of nearly every such animal in the county and make unnecessary much further outlay for the purpose.

Not All Rodents Injurious.

A few of the rodents which inhabit the United States are not classed as injurious, as they live in deserts, mountains, or swamps and rarely come in contact with cultivated crops. Some are valuable because they feed largely upon insects, some because they produce fur, and others because they are useful as human food.

Of the injurious species all are native to this country with the exception of four—the house mouse and three kinds of rats—but these four cause approximately two-thirds of all the damage. Field mice, kangaroo rats, pocket gophers, ground squirrels, prairie dogs, woodchucks, and rabbits are among the most destructive of the native species.

HOG RAISERS SHOULD PROVIDE HOME-GROWN PROTEIN FEEDS

Grow alfalfa, rye, soy beans, peanuts, cowpeas, or velvet beans to provide home-grown protein feeds for winter use. This is advice to hog raisers by the United States Department of Agriculture.

Shortage of tankage, shorts, middlings, oil meat, and other commercial protein feeds may continue during the coming year. A good wheat crop may increase the available shorts and middlings, but to be on the safe side hog growers are advised to make every effort possible to raise protein feeds on their own farms. Every hog grower is urged to study conditions in his own locality.

Alfalfa is recommended for as much use as possible where it is grown or obtainable at a reasonable price. It can be fed as whole hay in racks or in the form of thick slop after grinding. Probably the best practice, according to specialists, is to feed it both ways. Rye can be successfully grown in nearly all sections of the country. This crop sown in August or September makes a good fall feed. As soon as it is 3 or 4 inches high it can be pastured until snow covers it. It is one of the first pastures ready in spring and can be used until the middle of April or about May 1, when the hogs can be taken out and the crop harvested. Soy beans are valuable as feed when thrashed or ground and fed in the meal form. Soy-bean hay should be cut early enough to prevent the seeds popping out. In the Southern States peanuts, cowpeas, and velvet beans may be successfully used.

Idle Corn Binder Does No One Good—Machines Can't Fight But Must Work

The work-or-fight policy should be applied to farm machinery as well as to men, the United States Department of Agriculture suggests.

Though machines can not fight they can be put to work on many occasions instead of standing idle in the barn lot. Most farm machines and implements are capable of doing much more work than they usually do, and the more they are used the less man labor will be required on the farm. Three men with a corn binder, one operating the machine and two gathering and shocking the bundles, will cut from seven to ten acres a day, while four or five acres would be a fair day's work for the same three men cutting corn by hand.

Work and Years Not Related.

The average corn binder lasts about 11 years, but during that time does only about 40 days' actual work, the department specialists point out. There is no doubt that it could render several times this much service before wearing out if there were more work to do. These points are brought out in a bulletin soon to be published by the United States Department of Agriculture on the use of machinery in cutting corn. There seems to be very little relation, the bulletin says, between the amount of work done annually by a corn binder and the years of service.

The bulletin refers to a survey conducted in New York State which showed that the more the corn binder could be used each year the less the cost of cutting the corn when the cost of using the binder was taken into consideration. Two hundred and thirty-three of the four hundred and fifty-eight binders on which data were obtained cut 15 acres or less annually at a cost of $9.78 per day used and $1.67 per acre. The remaining 225 cut over 15 acres annually, averaging 32½ acres, at a cost of $3.24 per day of service and 57 cents per acre. The original cost of one of these binders was about $125.

Combining Recommended.

Thus if there is only one or two days' work for the binder to do each year, the cost of cutting the corn with it will be so great that its use will not be advisable unless it is impossible to cut the corn by other methods without seriously neglecting other work. If this is the case, the bulletin recommends that two or three neighbors, each of whom has only a small crop, combine in the purchase and operation of a corn binder. The first investment required of each and the machinery cost per acre will then be greatly reduced. This plan should not only apply to corn binders, but to other labor-saving machinery.

IF 100 HENS WERE ON EVERY FARM

There should be 100 hens on each farm in the United States. Each hen should produce at least 100 eggs. With approximately 6,000,000 farms, that would mean 600,000,000 hens and 60,000,000,000 eggs per year. That number of eggs constitutes a military resource not to be ignored.

AIDING IN OFFICE OF INFORMATION

Prof. Bristow Adams, editor of the Cornell agricultural publications, is serving in the Office of Information of the Department of Agriculture this summer during his vacation period from the New York State College of Agriculture. Professor Adams was connected with the Federal Department of Agriculture for more than eight years before he went to Cornell to take charge of the publications and the information service for the agricultural college there. Recently he was elected president of the American Association of Agricultural College Editors at the annual meeting held at the University of Tennessee, Knoxville.

In many States, county agents have conducted well-organized and successful campaigns against oat smut, which have resulted in a saving to the farmers of each State enough grain in these days of high prices to many times pay the annual cost of maintaining the entire staff of county agents in the States concerned.

Points on Licensing Farm Equipment Industry Explained by Department

In answer to inquiries received by the United States Department of Agriculture from farm implement dealers regarding various provisions of the President's recent proclamation for the licensing of the farm-equipment industry, officials of the Department of Agriculture who are charged with the carrying out of this proclamation, have prepared the following statement:

A *jobber* or *wholesaler* is an individual, partnership, association, or corporation, who purchases any farm equipment covered by the proclamation, and in turn sells it to a retail dealer; they are required to secure licenses for the conduct of such business regardless of its extent.

All *manufacturers, wholesalers, jobbers,* and *warehousemen* of farm equipment must secure Federal licenses regardless of the extent of their business.

Retailers not engaging in the wholesale business, whose gross sales do not exceed $100,000 per annum, are not required to secure a license for the conduct of their retail business in "farm equipment" as that term is defined in said proclamation and regulations. In determining whether the gross sales of a retail business do or do not exceed $100,000 per annum, the gross sales of the entire business, *including all lines of merchandise, as well as farm equipment,* should be embraced in the calculation.

All other retailers of any such farm equipment must secure a license in accordance with the proclamation.

Binder twine is not covered in any of the classes of farm equipment covered by the President's proclamation and regulations.

Fencing is specifically mentioned in the President's proclamation, and includes all types of fencing required for farm use in the actual production of foods and feeds.

Subsidiary selling companies.—Where a manufacturer organizes a separate corporation as a subsidiary selling company and the subsidiary buys farm equipment from the manufacturer and sells it either to retail dealers, jobbers, or wholesalers the manufacturer and the selling company should both secure licenses.

Regulation prohibiting resales within the same trade without reasonable justification.—The purpose of this regulation is to prevent an increase in the price of the product which might result from any unnecessary sale thereof in the course of its distribution from manufacturer to consumer. Whether there is reasonable justification for any resale within the same trade depends upon the facts in the particular case; no general exception will be made. However, if a real economic service in the marketing of farm equipment is performed by any such resale and it does not tend unduly to increase the price of the product, no objection would be made by this department to the resale.

Branch houses.—If a concern which is subject to license under the proclamation has a branch house which is a distinct legal entity, as, for instance, where the two are different corporations, a separate license should be secured for each such branch as well as for the main concern. If the main concern and the branch or branches are merely parts of the same legal entity, one license will suffice for all; but in any event the facts concerning the existence of the branch houses and their relationship to the main concern should be disclosed in the application for license.

Manufacturers of accessories and attachments.—If the manufacturer of accessories and attachments sells direct to dealers or users he is required to take out a license. However, if he only sells to the manufacturer of the complete machine, he will not be required to obtain a license at this time.

Silo manufacturers.—An individual, partnership, association, or corporation maintaining an establishment in which silos or silo parts are manufactured or stored, will be required to obtain a license, no matter how the product is distributed. Those who merely construct silos on farms, but maintain no manufacturing or storage establishments, will not be required to obtain a license.

Exporters.—The proclamation does not require that the business of exportation as such of farm equipment be brought under license, although if exporters are also engaged in the business of importing, manufacturing, storing, or distributing (exclusive of exporting) farm equipment covered by the proclamation, and are not specifically exempted by the food control act, they would have to secure licenses pursuant to the proclamation. Exports are controlled by the War Trade Board under other authority.

EAT COWPEAS, BEAT WEEVILS, AND SAVE THIS LARGE FOOD SURPLUS

A surplus of about half a million bushels of cowpeas will be used to help the South, the Army, and the Nation's transportation situation if the weevils don't get them first. To beat the weevils and accomplish all these things it is necessary, says the Department of Agriculture, that man, horses, mules, cows, and hogs eat more cowpeas. At present prices cowpeas are a cheap food. They are highly nutritious, can be prepared in many attractive ways, and are an excellent meat substitute. Cowpeas that are considered undesirable for food can be fed to live stock. When ground they are said to be about equal to corn in feeding value for fattening hogs.

Because damage by weevils to cowpeas in storage increases as summer advances the surplus must be used promptly. The damage by weevils can be checked, if not prevented, by placing the peas in cold storage. To assist dealers in carrying stocks, the United States Food Administration has advised the State food administrators that they will allow a cold-storage charge to be added to the cost of the cowpeas.

The housewife can find many recipes for using cowpeas in circulars and bulletins issued by the United States Department of Agriculture and the United States Food Administration. These can be obtained from county home-demonstration agents or on application to the States Relations Service, Washington, D. C.

The Wheatless Loaf Is Found—This Recipe Tells How To Make It

The wheatless loaf has been found. While the whole country has been seeking the 100 per cent wheat substitute yeast bread, a recipe has been developed in the experimental kitchen of the United States Department of Agriculture and the United States Food Administration that may mean the saving of thousands of pounds of wheat flour before flour from the next wheat harvest is available.

The recipe is soon to be published by the Office of Home Economics, United States Department of Agriculture, on a new food card which carries directions for making three new wheat substitute breads—the half wheat loaf, the one-fourth wheat loaf, and the wheatless loaf.

The directions for making the wheatless bread are as follows:

A Loaf of Bread Using No Wheat Flour.

All of these.	*With one of these.*	*And one of these.*
1. 1¾ cups liquid.	2. 3⅜ cups barley.	3. 2½ cups corn flour.
1 tablespoon corn sirup.	2¾ cups ground rolled oats.	2⅛ cups rice flour.
¼ cake yeast.		2¾ cups sweet potato flour.
2 teaspoons salt.		2⅛ cups (scant) tapioca flour.
1 whole egg.		

Make a sponge of materials under 1 (except egg) and one-half of ingredients used from 2 and 3. Sponge should stand in warm place until very light, at least two hours. Work in balance of substitute mixture when sponge is light. Work in egg, beaten slightly. Shape into loaf. Place in pan. Brush top of loaf with melted fat. Let rise to double bulk and bake in loaf pan in hot oven for one hour.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That are Helping American Farmers to Feed Nations

Smut Control Effects Large Saving.

A staff of 40 field men of the United States Department of Agriculture, under the direction of 8 leaders, is conducting a campaign for the control of smuts and other preventable cereal diseases in the Northern and Western States. The field men work in conjunction with State agencies, county agents, and other farm advisers in conducting seed-treatment demonstrations before farmers' organizations, movable schools, county and township high schools, and city organizations. Emphasis is placed on the treatment of preventable smuts of wheat, oats, barley, rye, and grain sorghums. The work thus far conducted in the territory mentioned probably has resulted in the treatment of 50 per cent of all the seed wheat, oats, and barley sown. This means a probable saving, according to the United States Department of Agriculture, of not less than 10,000,000 bushels of wheat, 25,000,000 bushels of oats, and 4,000,000 bushels of barley.

To Study Corn Diseases of the Orient.

Very destructive diseases of corn which occur in the Orient, induced by certain downy mildews, are to be studied by the United States Department of Agriculture. A quarantine prohibiting the importation into this country of shipments of corn from the Orient was established in 1916, but in order to be prepared to combat any of these diseases should they be introduced in spite of precautions which are now being taken, an investigator of the department was recently detailed to the Orient to conduct a thorough study of these diseases.

Campaign for More Hogs Successful.

Although definite figures are not yet obtainable, the Animal Husbandry Division of the Bureau of Animal Industry is assured that the campaign to increase pork production at least 15 per cent over last year has been successful. According to reports practically every State has done its part in obtaining this increase, and some have more than made up their quota. Data gathered by the United States Department of Agriculture show that on April 1 brood sows on the farms in the United States had increased 9½ per cent over the number on the same date the previous year. Weather conditions during March and April were very favorable over almost the entire hog-producing country, with the result that there was a larger percentage of pigs raised than has been the case for many years past.

Indian Squaws Organize to Study Foods.

Indian women on the Indian reservation near Syracuse, N. Y., have organized a study class under the leadership of the county home demonstration agent of the United States Department of Agriculture and the State College of Agriculture. This is the outcome of a demonstration of canning and war cooking given recently by the agent at the reservation. The new organization will study foods and later on the women will receive instruction in sewing.

Granges Cooperate in Food Conservation.

A number of granges are taking up special food conservation work under the direction of home demonstration agents of the United States Department of Agriculture and the State agricultural colleges. In Aroostook County, Me., the granges have opened their meetings to the public and have invited all farmers and their wives to come to hear the agent speak. In Allegany County, N. Y., the agent has been asked to attend grange meetings regularly in order to discuss timely topics on food conservation.

American - Grown Egyptian Cotton Saves Shipping Space.

When the War Trade Board recently announced the revocation of all outstanding licenses for the importation of Egyptian cotton and that importation of only 80,000 bales of long-staple Egyptian cotton will be allowed during 1918, attention was called to the increase in the production of Egyptian cotton in the irrigated lands of Arizona and neighboring States. The production in 1918 of this American-grown Egyptian cotton, according to specialists of the United States Department of Agriculture, probably will be between 40,000 and 50,000 bales. In 1917 the production was 16,000 bales, and in 1916, 3,331 bales. The acreage this year is estimated at 80,000, compared with an acreage of 35,000 in 1917. Egyptian cotton is used largely for automobile tires and high-grade sewing thread, and spinning tests by the Bureau of Markets of the department indicate that it can be used advantageously in the manufacture of airplane and balloon fabrics. Commercial production of Egyptian cotton in the American southwest was begun only in 1912, after long experimentation by the Bureau of Plant Industry, but already the industry has grown to such an extent that imports can be cut to 80,000 bales, thus saving a great amount of cargo space on the long water haul from the land of the Sphinx.

State Cooperation in Marketing Work.

Through cooperation with State institutions the Bureau of Markets now has 32 field agents located in various States assisting individuals and associations on local marketing problems. Surveys of marketing facilities for agricultural products have been undertaken in 27 States, while other work includes problems on storage, transportation, cooperative purchasing and marketing, grading of white and sweet potatoes, tomatoes, asparagus, fruit, and other crops.

Fewer Short-Measure Containers Being Used.

The Bureau of Markets is gradually eliminating all short-measure containers covered by the standard-container act, such as berry boxes and baskets, till baskets, and Climax or grape baskets. Manufacturers are now making these in standard sizes and discontinuing the production of short or non-standard packages, even for local use, because most of the fruits and vegetables are shipped across State lines. Local supplies of short containers that were in stock at the time the act was passed are now almost exhausted and can be used locally only where State laws do not prohibit them. The present act is said to be but a beginning on standardizing packages and the investigations of the Bureau of Markets show the need of standardizing other containers such as the hamper, round baskets, and tomato carriers. Thirty different sizes of hampers have been found between the peck and the 1½-bushel sizes, while three sizes are said to be sufficient for the legitimate demands of the trade.

Agents' Dresses Demonstrate Economy.

Forty-seven home demonstration agents in the South have adopted an inexpensive and appropriate traveling dress for their summer wear. It is of gray-blue wash material and trimmed with plain white collars and cuffs. A black hat completes the costume. In wearing this dress the agents demonstrate economy, good taste, and conservation to the women whose homes they visit, and at the same time simplify their own

clothing problem. The uniforms are ordered in wholesale quantities and three or four are purchased by each agent who wishes to conform with the standard dress idea.

City Garbage as a Hog Feed.

In accordance with the policy to eliminate all possible waste the Animal Husbandry Division of the United States Department of Agriculture is conducting an investigation in the utilization of garbage as a feed for hogs. Alva Wilson, formerly of the Nebraska Agricultural College, has been employed by the department to visit cities in all parts of the country to investigate the ways in which garbage is disposed of, what the cost of such disposal is, how many cities are making use of garbage as feed for hogs, and the success of this plan. There is no doubt, officials of the Animal Husbandry Division say, that a large amount of valuable hog feed is contained in garbage and in far too many cities it is not only wasted but large sums of money are being spent in its disposal.

Swine Work in State Colleges Studied.

The latest and best methods of carrying on swine experimental work in the various State agricultural colleges is being studied by the United States Department of Agriculture. Officials in all State colleges will be given the opportunity to learn of these methods in order that they may adopt the suggestions if they see fit. W. J. Carmichael, formerly in charge of swine experimental work at the Illinois Agricultural College, is now connected with the United States Department of Agriculture as extension animal husbandman, and will devote his time in visiting the various States, keeping in touch with the work with swine. Without doubt, officials of the Animal Husbandry Division say, there are methods of procedure now used in a number of States that could be used to advantage in other States if the men in charge were made acquainted with the work.

Banishing the Barberry.

The campaign to eradicate the common barberry, which was started by the United States Department of Agriculture last spring, has already met with gratifying results. The common barberry harbors the black or stem rust of wheat, oats, barley, and rye, a disease which causes enormous losses in this country. In certain European countries it has been demonstrated that the eradication of the barberry has resulted in a marked decrease in the amount of damage caused by this disease. In Central and Northwestern States where the campaign is being conducted public sentiment has been aroused. Nurserymen for the most part have agreed to discontinue distributing common barberry bushes. Park boards in many cities have eradicated them. State nursery inspectors or State entomologists are destroying the bushes wherever stem rust infection is found. Several State councils of defense have issued appeals for the eradication of this barberry, and the public safety commission of Minnesota has issued an order providing for compulsory eradication in that State. A law providing for eradication has been on the statute books of North Dakato for more than a year.

Rust-Resistant Wheat.

To develop varieties of wheat that will resist black or stem rust the United States Department of Agriculture is working in cooperation with the State experiment stations of Minnesota, Kansas, Tennessee, and Iowa. Rust-resistant durum wheats and other resistant varieties are being crossed on varieties known chiefly for their milling and bread-making qualities to obtain rust-resistant strains of good milling quality. Extensive milling and baking experiments have been made with a number of these hybrids.

Farm Labor in Canada Studied.

With a view to become acquainted with the methods of handling farm labor in Canada, so that similar methods may be put into practice in this country if they prove applicable, two representatives of the United States Department of Agriculture recently visited the Province of Ontario. They found that a recent registration had been made of all persons, male and female, over 15 years of age, to determine among other things their availability for necessary work other than that in which they are now engaged. From this list of registrants the names of all persons who are not now engaged in farming, but who have signified a willingness to do farm work if necessary, has been collected. It is estimated that 25 per cent of city registrants have volunteered for some form of agricultural service and will be placed on farms when needed. A large number of girls and young women have been placed on fruit and trucking farms along Lake Ontario. Tents, beds, stoves, and dishes are provided free through arrangements with the Young Women's Christian Association, or similar organizations, and the Ontario Government.

Negroes Study Food Saving.

Negro home demonstration agents of the United States Department of Agriculture and the State agricultural colleges are giving valuable help to their own people in the South. There are 202 of these trained women working under the direction of the State leaders of home demonstration work. They not only help the negroes in their homes, but also give instruction to women who are regular cooks. In the homes they teach gardening, canning, drying, brining, poultry raising, bee keeping, and house and furniture repairing, while in the work given to cooks greater emphasis is put on food preparation and food and fuel conservation.

To Investigate Insect Pests in Florida.

The recent discovery that the banana root-borer in Florida is becoming more widespread has led to the cooperative enterprise on the part of the United States Department of Agriculture and the Florida State Plant Board in working out methods to exterminate this insect.

Growers of castor beans in Florida recently have been having serious trouble with army worms. As the crop has an important relation to war needs, a special project has been launched by the United States Department of Agriculture in this and other Southern States to control the pest. The oil made from castor beans is used in airplane motors.

To Study Insects of Canal Zone.

The occurrence of the black fly, a pest of citrus fruits, in the Canal Zone and the possibility of this region being a point of introduction for other serious pests has led the United States Department of Agriculture to establish a research station in the zone. One of the specialists of the Federal Horticultural Board recently left Washington for Panama to take charge of the station. The black fly continues to spread in Cuba, and the menace to the citrus-fruit industry of Florida and the Gulf States is constantly increasing. Additional measures have been taken to prevent its introduction in the United States.

Red Cross Workers Learn of Foods.

Red Cross workrooms have been of great assistance to home demonstration agents as offering places where large groups of women may be reached and interested in special food study. In addition to giving talks on food saving, in several towns the agent prepares the noon lunch once a week for the workers. This serves to demonstrate good conservation recipes. Suppers for the benefit of the Red Cross have been given successfully in many places under the agents. Men as well as women are thus interested in the possibilities of war cooking.

Teach Mothers at Child Weighing Stations.

Home demonstration agents of the United States Department of Agriculture and the State agricultural colleges have been of great service in child-welfare work carried on at the community weighing stations for children in many of the large cities. The agents give the mothers advice on the proper feeding of their children and urge the use of milk and milk dishes. They find this a sure means of arousing interest in food work, for women may always be reached by an appeal to them through the health of their own children and by showing them real economy in new dishes.

HAY CAPS RETURN THEIR COST IN BETTERING CROP'S VALUE

Growers East of Mississippi River Like Them; Wider Use Advised

Protectors Shield from Rain, Prevent Loss of Leaves, Improve Color, and Increase Worth of Feed

Hay caps—covers used in curing hay in cocks—give protection from rain, reduce the loss of leaves, improve the color, and increase the feeding value of the hay, according to Farmers' Bulletin 977, recently published by the United States Department of Agriculture.

One of the strongest recommendations for the use of hay caps is the fact that hay growers east of the Mississippi River who have used them are nearly always very enthusiastic regarding their advantages. The chief reason that hay caps are not used more extensively, both North and South, according to the bulletin, is that most hay growers are of the opinion that they cost too much to warrant their use. In many sections, the bulletin adds, the reduction in the value of hay through discoloration by sun and rain in a normal season amounts to as much as, or perhaps more than, the cost of enough hay caps to prevent this loss.

Two Kinds of Caps.

Hay caps are of two distinct types—those that are entirely impervious to both air and rain, and those that shed nearly all of the rain and at the same time allow most of the moisture-laden air from the interior of the stack to pass through and be carried away. The caps are fastened on the hay cocks by weights attached to each corner of the cap by heavy wire pins run through eyelets in each corner of the cap and into the hay, or by the use of strings tied to each corner of the cap and fastened together near the ground on opposite sides of the cock. Caps should be put in place as soon as the cock is made, but when there is no indication of rain this may be delayed until the following forenoon. When the caps are not in use they should be dried thoroughly and stored. If properly cared for they will last several seasons, and can be used on three or four cuttings each season.

Caps' Value Shown.

At the New Jersey Experiment Stationi t was found that when some cocks of alfalfa were covered with cotton sheeting caps 45 inches square and exposed to a heavy rain lasting 24 hours the hay was damp only 2 or 3 inches below the top. The cocks that were not covered received a thorough wetting, and the hay was more or less bleached the stems brittle, and the loss of leaves heavy.

Hay caps are especially valuable in curing alfalfa and clover hay, which do not dry out as readily as the grasses. Alfalfa hay must be handled carefully to avoid loss of leaves, which constitute from 40 to 60 per cent of its weight, according to the bulletin. Farmers making a specialty of producing choice hay for market, or feeders, such as dairymen, desiring good palatable hay free from dust will find that under certain conditions it will pay well to cure hay in cocks, under hay caps, when ordinary methods have been found to be unsatisfactory.

Food Administration Announces Increase in Basis Wheat Prices

The Food Administration issues the following:

The establishment of new freight rates by the Railway Administration has necessitated a change in the Government price basis for wheat. After consideration of all factors the Food Administration announces the price basis at various markets for the grades of No. 1 Northern Spring, No. 1 Hard Winter, No. 1 Red Winter, No. 1 Durum, No. 1 Hard White in store public elevators approved for storage by the Grain Corporation (seaboard or in store on export terms), as follows, effective July 1:

Terminal.	Price.
New York	$2.39½
Philadelphia	2.39
Baltimore	2.38¾
Newport News	2.38¾
Chicago	2.26
New Orleans	2.28
Galveston	2.28
St. Louis	2.24
Duluth	2.22½
Minneapolis	2.21½
Kansas City	2.18
Omaha	2.18
San Francisco	2.20
Los Angeles	2.20
Portland	2.20
Tacoma	2.20
Seattle	2.20
Astoria	2.20

The basis for No. 2 wheat will be 3 cents below No. 1, and the basis for No. 3, 7 cents below No. 1. Grades below No. 3 will be dealt in on sample.

It is expected that the changes in Federal grading standards will throw more wheat into higher grades than last year. The changes in price are worked out as nearly as possible to compensate for increases in railway and sea freights.

The other classes of wheat than those mentioned above as equivalents will be dealt with on the following basis:

The class of Dark Hard Winter will be bought at 2 cents above Hard Winter; Dark Northern Spring at 2 cents above Northern Spring; Amber Durum at 2 cents above Durum; while Yellow Hard Winter will be bought at 2 cents under Hard Winter; Red Spring at 5 cents under Northern Spring; Red Walla at 7 cents under Red Winter; Red Durum at 7 cents under Durum; Soft White at 2 cents under Hard White; and White Club at 4 cents under Hard White.

Certain parts of the intermountain territory do not receive full compensation for freight increases under the above arrangements and, therefore, special arrangements by which the Grain Corporation assumes the compensation directly in this territory will be announced in a few days.

We wish to emphasize that the above is the basis upon which the Grain Corporation is prepared to buy wheat at the above markets.

Prices established by Presidential proclamation of February 21, which are superseded by the new schedule, follow:

Terminal.	Price.
Chicago	$2.20
Omaha	2.15
Kansas City	2.15
Minneapolis	2.17
Duluth	2.17
New York	2.28
Philadelphia	2.27
Baltimore	2.27
Newport News	2.27
Charleston	2.27
Savannah	2.27
Portland	2.05
Seattle	2.05
San Francisco	2.10
Galveston	2.20
New Orleans	2.20
Salt Lake City	2.00
Great Falls	2.00
Spokane	2.00
Pocatello	2.00
Fort Worth	2.09
Oklahoma City	2.05
Wichita	2.08
St. Louis	2.18

FARMERS PLAN COUNTY AGENT WORK

Growth of the farm bureau plan throughout the Northern and Western States has resulted in farmers themselves planning a large part of the work of the county agents of the United States Department of Agriculture.

Of the 611 county agents reporting in 33 Northern and Western States for 1917, 384 had bureau organizations with a membership of 161,391 of the most practical farmers of their counties to help direct county agent work and develop the county agricultural program. A large number of additional counties have perfected similar organizations in 1918.

Make Orange Vinegar Instead of Apple Product in Citrus Regions

Cull oranges, usually allowed to decay, can be utilized by growers in the preparation of orange vinegar, a very high-grade product. It can be used by growers' families and throughout communities where citrus fruit is grown. Such communities are now supplied with vinegar made from apple waste or grain. Nearly all the citrus-growing regions are so situated that this material has to be brought to them from some distance. There is no reason why orange vinegar can not be substituted wholly for the other products, according to specialists of the citrus by-products laboratory of the United States Department of Agriculture at Los Angeles.

Orange vinegar is easily made in barrel quantities and is sufficiently cheap to compete with cider vinegar where there is a difference of freight in favor of the orange product. The following process has been thoroughly tried out in the Los Angeles laboratory of the Bureau of Chemistry, and vinegar has been produced which expert buyers in the Middle West consider to be as good as the best grades of cider vinegar.

Use Kitchen Cider Press.

The process best adapted for the production of orange vinegar in barrel lots is known as the "roller process." The juice should be pressed from the oranges in an ordinary cider press, or a kitchen fruit press can be used for the purpose. Strain out any large particles of fiber or peel that may be found in the juice, and add to it a pint of brewers' yeast or a half dozen cakes of compressed yeast which have been softened in orange juice. The juice should now be set aside for several days in an empty barrel, keg, or tub, and kept loosely covered with a cloth in order to keep the flies from it. It is best kept at a temperature of 85° F.

As soon as fermentation has ceased (usually from three to five days are required, depending upon the temperature at the time) the juice is again strained and is ready to place in the generator.

How to Make the Generator.

To make the generator use an ordinary vinegar or whisky barrel, and so loosen the hoops that one head can be removed from the barrel. After this is done, build a small rack to fit into the barrel in such a way that throughout its entire length for about 6 inches below the bung a compartment is made which can be filled with beech-wood shavings or corncobs. A quick way to do this is to build a rack of slats 3 inches wide by ½ inch thick, these slats being set into grooved end pieces, about ½ inch space being allowed between them. At each end this rack is supported by a 2 by 4 inch piece cut in such lengths that the rack will be at least 6 inches below the bung. The 2 by 4 pieces are usually joined at the bottom by a cross-piece 1 by 2 inches. After this rack is set in place and the compartment filled with cobs or shavings, the barrel is reheaded and three 1-inch holes are bored in each end so that the openings come just beneath the bottom of the rack holding the shavings or corncobs. These holes should be bored so that they slant downward. In constructing the rack and fastening it to the 2 by 4 pieces, grooves or dowels should be used, or, if more convenient, hardwood pegs may be utilized to hold the rack together. Iron or other metallic nails should not enter into its construction. The capacity of a generator built in this way is from 30 to 40 gallons of vinegar.

When the generator is to be used for the first time, or after it has been standing idle for any length of time, it is best to scald it thoroughly before putting it in operation. This can be done by blowing steam into the bung or giving it a good washing in hot water.

Add Small Amount of Vinegar.

After the water has been thoroughly drained out, add about a quart of good vinegar (cider, malt, or orange) which has not been pasteurized. Allow the vinegar to flow over the shavings and the inside of the barrel. Now add through the bung the fermented juice, close the bung tightly with its wooden stopper, and plug the holes in the ends of the barrel with plugs made of ordinary raw cotton. Several times each day, if possible, but at least once each day, remove these cotton plugs and replace them with wooden plugs. Turn the barrel over so that the bung is at the bottom, and shake three or four times so that the juice in the barrel will come thoroughly in contact with the beech-wood shavings or corncobs. Roll the barrel back into its original position, remove the wooden pegs, and reinsert the cotton plugs. An excellent vinegar is produced within the barrel if this treatment is kept up daily and the temperature is above 80° F. in from 60 to 90 days.

When the material is sufficiently acid, remove from the barrel, place in clean glass bottles, and keep tightly corked. Little difficulty is experienced in keeping this product, but it is readily sterilized and made easier to keep by heating the bottles in boiling water for 15 to 20 minutes. No sediment will deposit in the bottles if this treatment is given. Where such sediment does appear it is best to pour off the vinegar gently and sterilize as directed above.

REPORTS COMMERCIAL WHEAT, JUNE 1, AS 17,068,487 BUSHELS

Figures Cover Stocks Actually Reported, Not Total Supply

Wheat on Farms Not Included—Amount Held by 9,576 Firms 38.2 Per Cent of Stocks Held June 1, 1917—Other Food Products

The commercial stocks of wheat reported to the United States Department of Agriculture in a food survey for June 1, 1918, amounted to 17,068,487 bushels. This refers to stocks actually reported and does not represent an estimate of the total commercial stocks of the country. Neither do the figures include stocks on farms on June 1, for which no data are available. According to the statement just issued by the department these stocks were held by 9,576 firms out of a total of 13,109 submitting reports (the firms consisting of elevators, warehouses, grain mills and wholesale grain dealers), and were 38.2 per cent of the stocks held by the same firms on June 1, 1917.

The commercial visible supply figures as published by the Chicago Board of Trade show only 1,146,000 bushels of wheat, as against 28,896,000 bushels a year ago, and the Bradstreet figures for June 1 show 4,479,000 bushels, as against 34,876,000 bushels for the same date in 1917. The board of trade figures cover commercial holdings in about a score of large cities; the Bradstreet figures cover these holdings and those in certain smaller markets, in all about 50. The food survey figures cover practically all commercial holdings throughout the country. These figures indicate that the stocks of wheat in the primary markets were largely depleted and that the commercial holdings were confined for the most part to the smaller interior points.

Stocks of Other Cereals.

The commercial stocks of other cereals on June 1, according to the department's statement, were as follows: Corn, 32,834,521 bushels; oats, 42,943,610 bushels; barley, 8,228,164 bushels; and rye, 3,178,105 bushels. These stocks represent the following percentages of the corresponding stocks on June 1, 1917: Corn, 149.5 per cent; oats, 90.6 per cent; barley, 121.7 per cent; and rye, 208.8 per cent.

The commercial stocks of flour and meal as reported in the survey were: Wheat flour, white, 4,433,515 barrels; whole wheat and graham flour, 153,966,000 barrels; rye flour, 1,005,691 barrels; rye meal, 3,612,863 pounds; barley flour, 1,092,310 barrels; barley meal, 1,266,047 pounds; corn flour,

49,701,212 pounds; granulated corn meal, 77,664,450 pounds; other corn meal, 43,238,-182 pounds; and buckwheat flour, 3,101,059 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 64.6 per cent; whole wheat and graham flour, 141.7 per cent; rye flour, 419.9 per cent; rye meal, 376.1 per cent; barley meal, 377.9 per cent; granulated corn meal, 220.9 per cent; other corn meal, 227.9 per cent; and buckwheat flour, 95.5 per cent. The stocks of corn flour and barley flour on hand June 1, 1917, were so small as to make unnecessary any comparison between them and the present stocks on a percentage basis. The stocks of corn flour on June 1 this year show an increase over the holdings reported a month earlier, being 49,701,212 pounds, as against 24,396,026 pounds.

Foods Reported by Grocers.

The following commodities were reported by wholesale grocers, with the results indicated: Beans, 5,770,709 bushels; rice, 61,-584,539 pounds; rolled oats, 50,057,798 pounds; canned salmon, 78,615,960 pounds; canned tomatoes, 95,571,689 pounds; canned corn, 47,399,225 pounds; and sugar, 237,-191,696 pounds. The stocks of beans, rolled oats, canned salmon, and canned tomatoes showed a substantial increase, the present stocks representing the following percentages of those on hand a year ago: Beans, 184.6 per cent; rolled oats, 137.5 per cent; canned salmon, 119.2 per cent; and canned tomatoes, 113.1 per cent. The stocks of sugar, rice, and canned corn on the other hand were from 11 to 21 per cent smaller than those of last year. Returns from wholesale grocers reporting holdings of condensed milk on June 1, 1918, indicated that the stocks of condensed milk, amounting to 20,375,502 pounds, were 11.7 per cent larger than those last year and that the stocks of evaporated milk, amounting to 73,243,924 pounds, were 177.1, 20.6 per cent larger than on the corresponding date a year ago.

COST OF PRODUCING APPLES STUDIED IN IDAHO VALLEY

The current cost of producing apples in the Payette Valley, in Western Idaho, averaged 71 cents per bushel box under the normal prices of farm labor and material which existed in 1915, when farm management specialists of the United States Department of Agriculture conducted a study in the district. The report of their study has been published in Bulletin 636, and is one of a series of publications covering the studies in intensive commercial apple-growing districts in the Northwest.

It was found that yield was the principal factor which affects the cost per box in the Payette and other valleys where studies were made, and that the cost of maintaining an orchard remains practically the same per acre whether the yields are high or low. Other factors affecting the cost per box are the size of the orchard, the system of orchard management which is practiced, and the amount of credit derived from wood and cull apples from the orchard. The study in the Payette Valley brought out the fact that diversified farming in combination with fruit growing gives stability to agriculture. Although specialized fruit growing may be more successful in that section in some seasons, says the bulletin, the general and more diversified farms are the more successful on the average of a series of years.

Five Circuits of Larger Fairs Planned For Combined Exhibits of U. S. Government

The joint committee on Government exhibits, representing the Departments of Agriculture, War, Navy, Interior, and Commerce, the Food Administration and the Committee on Public Information, has adopted a revised itinerary for the display of exhibits representing the wartime and other activities of the Federal agencies.

Five circuits of larger fairs and expositions throughout the country have been planned, according to an announcement by F. Lamson-Scribner, of the Department of Agriculture, who is chairman of the joint committee. Following are the itineraries:

Circuit No. 1.

Sedalia, Mo., August 10 to 17; Des Moines, Iowa, August 21 to 30; Hamlin, Minn., September 2 to 7; Milwaukee, Wis., September 9 to 14; Oklahoma City, Okla., September 21 to 28; Wichita, Kans., September 30 to October 12; Dallas, Tex., October 15 to 27; Waco, Tex., November 2 to 17.

Circuit No. 2.

Erie, Pa., August 19 to 24; Rochester, N. Y., September 2 to 7; Syracuse, N. Y., September 9 to 14; Trenton, N. J., September 30 to October 4; Richmond, Va., October 7 to 12; Petersburg, Va., October 15 to 19.

Circuit No. 3.

Springfield, Ill., August 9 to 24; Detroit, Mich., August 30 to September 8; Nashville, Tenn., September 16 to 21; Memphis, Tenn., September 21 to 28; Knoxville, Tenn., October 7 to 12; Atlanta, Ga., October 14 to 19; Macon, Ga., October 30 to November 9; Jacksonville, Fla., November 27 to December 6.

Circuit No. 4.

Columbus, Ohio, August 26 to 31; Indianapolis, Ind., September 3 to 7; Topeka, Kans., September 9 to 14; Hutchinson, Kans., September 16 to 21; Muskogee, Okla., September 30 to October 5; Kansas City, Mo., October 16 to 26; Shreveport, La., October 30 to November 4.

Circuit No. 5.

Lincoln, Nebr., September 1 to 6; Douglas, Wyo., September 10 to 14; Pueblo, Colo., September 23 to 28; Salt Lake City, Utah, September 28 to October 5; Los Angeles, Cal., October 12 to 26; Phoenix, Ariz., November 11 to 16.

Huron, S. Dak. (Sept. 9 to 14), is to be provided for in a sixth circuit which has been approved by the joint committee.

PEANUT BUTTER OR STEAK?

Peanut butter, according to specialists of the United States Department of Agriculture, contains 1½ times as much protein, over three times as much fat, and three times as much fuel value as round steak. Also, about 17 per cent of peanut butter is carbohydrates, mostly starch, while steak contains no carbohydrates. These figures show that, pound for pound, peanut butter has a much greater food value than round steak.

TREAT GRAIN BEFORE PLANTING

Treatment of seed wheat, oats, or other cereal has been found to be a profitable practice, not alone because of its value as a smut preventive, but because it improves germination and aids the development of the seedling. The chemical baths, formaldehyde in particular, which are used in the treatment prevent in a very large measure the development of harmful fungi that are present on the seed or in contact soil.

MORE POULTRY IS NEEDED

Two causes combine to bring the necessity for a special effort to secure the raising of more poultry this year. One is that the war needs of the Nation make larger average stocks of productive poultry important. The other is that the number of fowls on farms has, from a variety of causes, been reduced during the past year.

The general need of increased production of meat and wool, together with their high values, has given sheep raising a new appeal to the older farming areas.

Get Advice of Federal Specialists—These Bulletins of Interest to Women

Every housewife in the United States is entitled to the knowledge gained through the experiments and investigations of the United States Department of Agriculture. Many of the bulletins issued by the department contain information on household topics of inestimable value, according to women who have used them.

Nearly every phase of household work has been investigated scientifically and the results have been described simply by the department's specialists. Their aim, of course, has been to spread dependable information among the people for whom the department was established. This means, in the first place, those on the farms, but the household information many times can be put to a good use in city homes as in those in the country.

How to Get the Bulletins.

Bulletins in the following list will be sent free so long as the supply lasts on application to the Secretary of Agriculture, Washington, D. C., or to your Senator, Representative, or Delegate in Congress, each of whom has a limited allotment. Residents of foreign countries may purchase the bulletins from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 6 cents each, which includes postage.

Following are listed some of the bulletins containing household information issued by the department and available to the public:

Foods.

Principles of Nutrition and the Nutritive Value of Food. (Farmers' Bulletin 142.)
Cereal Breakfast Foods. (Farmers' Bulletin 249.)
Care of Food in the Home. (Farmers' Bulletin 375.)
Economical Use of Meat in the Home. (Farmers' Bulletin 391.)
Mutton and Its Value in the Diet. (Farmers' Bulletin 526.)
Sugar and Its Value as Food. (Farmers' Bulletin 535.)
Use of Corn, Kafir, and Cowpeas in the Home. (Farmers' Bulletin 559.)
Corn Meal as a Food: Ways of Using It. (Farmers' Bulletin 565.)
Honey and Its Use in the Home. (Farmers' Bulletin 653.)
School Lunches. (Farmers' Bulletin 712.)
Food for Young Children. (Farmers' Bulletin 717.)
Bread and Break Making. (Farmers' Bulletin 807.)
How to Select Foods: I. What the Body Needs (Farmers' Bulletin 808.)
How to Select Foods: II. Cereal Foods. (Farmers Bulletin 817.)
Sugar-Beet Sirup. (Farmers' Bulletin 823.)
How to Select Foods: III. Foods Rich in Protein. (Farmers' Bulletin 824.)
Use of Wheat Flour Substitutes in Baking. (Farmers' Bulletin 955.)
Use of Barley. (Circular 111.)
Use of Soy Beans. (Circular 113.)

Butter, Cheese, and Milk.

Use of Milk as Food. (Farmers' Bulletin 363.)
Care of Milk and Its Use in the Home. (Farmers' Bulletin 413.)
Cheese: Economical Uses in the Diet. (Farmers' Bulletin 487.)
Clean Milk: Production and Handling. (Farmers' Bulletin 602.)
Removing Garlic Flavor from Milk and Cream. (Farmers' Bulletin 608.)
How to Make Cottage Cheese on the Farm. (Farmers' Bulletin 850.)
Making Butter on the Farm. (Farmers' Bulletin 876.)

Gardening.

Roses for the Home. (Farmers' Bulletin 750.)
Control of Diseases and Insect Enemies of the Home Vegetable Garden. (Farmers' Bulletin 856.)
Saving Vegetable Seed for the Home and Market Garden. (Farmers' Bulletin 884.)
Home Gardening in the South. (Farmers' Bulletin 934.)
The City and Suburan Vegetable Garden. (Farmers' Bulletin 936.)
The Farm Garden in the North. (Farmers' Bulletin 937.)

Poultry.

Back-yard Poultry Keeping. (Farmers' Bulletin 889.)

Household Pests.

House Centipede. (Farmers' Bulletin 627.)
Cockroaches. (Farmers' Bulletin 658.)
True Clothes Moth. (Farmers' Bulletin 659.)
Hydrocyanic-Acid Gas against Household Insects. (Farmers' Bulletin 699.)
Fly Traps and Their Operation. (Farmers' Bulletin 731.)
House Ants: Kinds and Methods of Control. (Farmers' Bulletin 740.)
The Bedbug. (Farmers' Bulletin 754.)
The House Fly. (Farmers' Bulletin 851.)
House Rats and Mice. (Farmers' Bulletin 896.)
Fleas and Their Control. (Farmers' Bulletin 897.)
The Silverfish or "Slicker:" An Injurious Household Insect. (Farmers' Bulletin 902.)

Preserving and Using Fruits and Vegetables.

Preparation of Vegetables for the Table. (Farmers' Bulletin 256.)
Use of Fruit as Food. (Farmers' Bulletin 293.)
Muscadine Grape Sirup. (Farmers' Bulletin 758.)
Home Canning by the One-Period Cold-Pack Method. (Farmers' Bulletin 839.)
Home Canning of Fruits and Vegetables. (Farmers' Bulletin 853.)
Home Preservation of Muscadine Grapes. (Farmers' Bulletin 859.)
Fresh Fruits and Vegetables as Conservers of Other Staple Foods. (Farmers' Bulletin 871.)
Home Storage of Vegetables. (Farmers' Bulletin 879.)
Salting, Fermentation, and Pickling of Vegetables. (Farmers' Bulletin 881.)
Homemade Fruit Butters. (Farmers' Bulletin 900.)
A Successful Community Drying Plant. (Farmers' Bulletin 916.)

Home Conveniences.

Use of Paint on the Farm. (Farmers' Bulletin 474.)
Ice Houses. (Farmers' Bulletin 475.)
Lawns and Lawn Soils. (Farmers' Bulletin 494.)
Farm Kitchen as a Workshop. (Farmers' Bulletin 607.)
Homemade Fireless Cookers and Their Use. (Farmers' Bulletin 771.)
Modern Methods of Protection against Lightning. (Farmers' Bulletin 842.)
Removal of Stains from Clothing and Other Textiles. (Farmers' Bulletin 861.)
Farm-Home Conveniences. (Farmers' Bulletin 927.)

Miscellaneous.

Bird Houses and How to Build Them. (Farmers' Bulletin 609.)
Canaries: Their Care and Management. (Farmers' Bulletin 770.)
The Community Fair. (Farmers' Bulletin 870.)
Fire Prevention and Fire Fighting on the Farm. (Farmers' Bulletin 901.)
Some Common Disinfectants. (Farmers' Bulletin 926.)

Food Leaflets and Circulars.

The department has published a series of pamphlets dealing with food saving and containing late information for the economical use of various foods and the making of desirable leftovers. These circulars contain many practical recipes expected to be of direct interest to the housewife who wishes to help through her household in the national effort to insure an adequate food supply. They will be sent free in answer to individual requests and are especially suitable for distribution by those in charge of local food conservation campaigns. Inquirers should ask for the United States Food Leaflets.

Other circulars issued by the department for free distribution on request are entitled "Cottage-Cheese Dishes," "Use of Peanut Flour to Save Wheat," and "Use Potatoes to Save Wheat." These contain new recipes for the use of these products.

DESCRIBES GREAT TREES OF THE ROCKY MOUNTAIN REGION

Some red cedars in the Rocky Mountain region are 1,000 years old. Not far behind them in longevity come western larch and Alpine larch, specimens of which have been known to reach the ripe old age of 700 years. Douglas fir is able to grow through an exceptionally wide range of conditions, for it is found from sea level to 11,000 feet above. Mountain hemlock grows from sea level to 9,000 feet above, while Alpine larch finds its limit at 7,600 feet.

These are random facts selected from "Miscellaneous Conifers of the Rocky Mountain Region," just published as Bulletin 680 of the United States Department of Agriculture. Distinguishing characteristics, forest habits, and geographic distribution of the larches, hemlocks, false-hemlock, incense cedar, western red cedar, and yew that grow naturally within the Rocky Mountain region are discussed in the bulletin. Many of these species are important timber trees, and some of them are veritable giants of the forest. Douglas fir, next to southern yellow pine, furnishes more lumber than any other type of timber. Except for the Sequoias, it is the most gigantic of all our western trees, though in exposed situations high in the Rocky Mountains it may be only a 3-foot dwarf.

The great bulk of this country's poultry always has been produced not on specialized poultry farms but in the door-yards and farm lots of the diversified farms.

Binders and Platform Harvesters Save Man Power in Cutting Corn

One man with a corn knife by working hard can cut and shock an average of 1½ acres a day. Two men with a platform harvester can harvest 4 or 5 acres in the same time, and three men with a corn binder in a 10-hour day can cut and shock from 7 to 9 acres. These figures are brought out in a Farmers' Bulletin soon to be issued by the United States Department of Agriculture to show advantages of using machinery in cutting corn. This year when farm help is so limited there is urgent need for the use of labor-saving machinery wherever possible. Cutting corn by hand is a hard, disagreeable task, the bulletin points out, and the time when it should be done is limited to a few days if the full feeding value of the corn is to be retained. Fall plowing, seeding for winter wheat and digging potatoes must be done on many farms at about the same time. In such cases, the timeliness and ease of accomplishing the work are determining factors in deciding the advisability of using corn-cutting machinery.

How Binder Saves Labor.

The corn binder does the best work when the corn is all standing upright. Usually most satisfactory results are obtained with a three-horse team, and sometimes four horses are necessary when the corn is heavy or the ground hilly. In ordinary yields, one man operating the binder will keep two men busy gathering the bundles and shocking them. These three men cutting and shocking by hand would scarcely cover more than 4 acres in a day and it would be necessary to work much harder than when the corn binder is used, thus the machine requiring less laborious work takes from one-half to two-thirds as long to cut a given acreage.

When the binder is used for cutting corn for silage the labor of at least two men will be saved as compared to cutting by hand. One binder will usually be able to cut the corn as fast as a 12 or 14 inch silage cutter can handle it. A great deal of time is saved in unloading at the cutter, because the corn is in bundles, which enables a further reduction in the size of the harvesting crew.

Elevator Attachment Aids.

A bundle elevator attachment to the corn binder saves further labor. By this attachment the bundles of corn are delivered directly to a wagon driven by the side of the binder. This method eliminates another man in the crew. When the bundles are dropped from the binder to the ground, two men are generally required to hand them up as fast as one man can arrange them on the wagon. When an elevator attachment is used, one man usually arranges the bundles on the wagon as they are delivered from the binder and another man or boy drives the team.

The platform harvester is the most satisfactory machine when the acreage in corn is not sufficiently large to justify a binder. This machine consists of an A-shaped platform on low wheels, two sides of which are equipped with knives. It is drawn by one horse, operated by two men, and cuts two rows at a time. The men gather the stalks as they are cut, and when the shock is reached the horse is stopped and the men carry the cut corn to the shock. In cutting corn with a platform harvester for silage much time can be saved and efficient work done if a wagon is driven alongside the harvester and the corn placed on it directly as it is cut. By this method approximately 5 acres of corn yielding 8 tons of silage per acre constitutes a fair day's work. Two men with a platform harvester and one horse will cut and shock at least as much corn in a day as three men cutting by hand. This machine thus taking the place of one hired helper will very nearly pay for itself in cutting 40 acres.

TRACTORS FOUND DEPENDABLE WHEN OPERATORS "KNOW HOW"

Of more than 600 tractor owners on representative farms in Illinois, who reported in a recent survey conducted by the United States Department of Agriculture, a report of which is published as Farmers' Bulletin 963, 54 per cent stated that their outfits were not disabled a single day when needed during the entire season last year. Of the remaining 46 per cent the average number of days their tractors were out of commission when needed was 5. This average, however, did not include one man who stated that his machine was not usable about half the time.

The reports of tractor owners indicate that with a careful and proficient operator a gas tractor is a very dependable source of power. Occasional slight delays probably will be encountered, but serious ones will be exceptional, whereas with a careless or incompetent operator expensive delays are apt to be frequent.

Of the tractors owned by Illinois farmers reporting, about 90 per cent were operated by the owner or some member of his family, the best results usually being obtained by this class of operators. Thirty-six per cent of Illinois owners reported no time lost in the field on account of trouble with the outfit. This probably means that the time lost was not worth mentioning. Most men do not consider it trouble so long as they know at once the cause of stoppage or other irregularity in the engine's operation, and are able to remedy it properly. The average time lost per day by the 46 per cent reporting trouble is a little over three-quarters of an hour.

STRONG DEMAND FOR GEESE.

Geese hold a sector in the line of the poultry army that makes war against waste. When the facts are taken into consideration that the demand for geese is strong, steady, and extends over practically the whole year, that geese excel all other kinds of poultry as producers of fat, a thing of which the world stands at present in dire need, and that their value as egg producers is considerable, the importance of an adequate number of geese in the poultry scheme becomes apparent. Geese take their living in large part from grasses of the pasture, and need range of this nature to be kept at a profit.

In cooperation with experiment stations of Minnesota, Kansas, and Tennessee the United States Department of Agriculture has conducted important research work with a view of developing rust-resistant sorts of wheat which at the same time will satisfy the growers' requirements and possess all the virtues of the best milling and baking varieties of the common bread wheats.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination on August 20, 1918, for investigator in city marketing, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., and in the field, at entrance salary ranging from $1,800 to $2,400 a year will be filled from this examination. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Assistant in agricultural technology, qualified as instrument maker, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, and other branches of the Departmental Service in Washington, D. C., at entrance salary ranging from $1,200 to $1,800 a year, will be filled from this examination. Date of examination August 20, 1918. Applicants should once apply for Forms 304 and 2029, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

High Grades for Northwest Wheat Under Federal Standards, Figures Show

The Federal standards for wheat have resulted in high grades for the northwest wheat crop of 1917, according to figures compiled by the United States Department of Agriculture. The report shows that 58.9 per cent of the entire Hard Spring wheat crop marketed up to March 1, 1918, received better grades than No. 2 Northern Spring. This 58.9 per cent, or 44,524 cars, represents premium grade wheat over the contract grade, while under former standards only 18 per cent during the best year of the last 10-year period received grades higher than the former contract grade, and the average for 10 years was only 6.3 per cent. The Federal No. 2 Northern Spring grade, it is pointed out, corresponds in quality to the former No. 1 Northern of the Minnesota Standards, and the trade adopted the Federal No. 2 grade as the basis or contract grade, as against the former Minnesota No. 1.

Grades at Country Elevators.

That country elevators are not undergrading the farmers' wheat is indicated by published figures showing the per cent of the crop falling into each grade at country elevators and the per cent of the crop by grades as received at terminal elevators. The country elevators covered by the figures include elevators in Minnesota, North Dakota, South Dakota, and Montana. In Minnesota 54.8 per cent of the wheat received at country elevators was graded No. 1, while the figures for North Dakota show 78.4 per cent, and the average for all four States was 64.7 per cent.

Changes in New Grades.

The amended standards for wheat, which become effective July 15, 1918, are even more liberal than the present standards. The weight per bushel requirement has been reduced, a larger per cent of moisture is allowed, and larger amounts of damaged grains and foreign material are permitted. The restrictions on admixtures of other classes of wheat are more lenient. Details of the amended grades and the results of the application of Federal grades can be found in Market Service and Regulatory Announcement No. 36, just issued by the United States Department of Agriculture.

STOCKYARD RECEIPTS IN JUNE

Receipts of cattle, hogs, and sheep at 36 cities in June show increases over receipts in June, 1917, according to the monthly report just issued by the Bureau of Markets. The June totals for the two years covering all the larger cities, with 1918 figures given first, are: Cattle, 1,580,920 and 1,544,299; hogs, 2,596,619 and 2,472,090; and sheep, 1,247,115 and 1,042,235. Although previous monthly reports have shown increases in one or two classes of live stock, it is pointed out that this is the first time increased receipts are reported for all three classes of live stock, cattle, hogs, and sheep in the same month.

Peanut shells consist largely of crude fiber and have practically no feeding value.

In growing chicks, the quality—the vigor, vitality, and capacity for growth—that the chick has when it starts in life count for at least as much as good conditions and good care.

Save manure. The necessity for this is sometimes forgotten by the small farmer who is just starting in the business of live-stock production. Fertilizer is scarce, high in price, and hard to get for many reasons. Therefore, the more manure saved to apply to the land the less need for fertilizer.

SEEDS FORMERLY IMPORTED MUST NOW BE GROWN AT HOME

War conditions have made it necessary for the United States to produce at home seed supplies that formerly were imported from Europe. "Temporary seed shortages have developed under new economic conditions, and they may continue," says the United States Department of Agriculture in The Seed Supply of the Nation, a new publication issued as Yearbook Separate 757, "but farmers and seedsmen are resourceful and they may be expected to find ways and means to meet not only the needs of this country but also those of other countries which may be dependent upon us."

Although, as a matter of necessity, seed production has increased in this country since the war, the experts of the department state that the possibilities of commercial seed growing in the United States have only been slightly developed. The publication mentioned may be obtained by seedsmen and those especially interested. It discusses at length the various American farm crops, from a viewpoint of seed supply.

American farmers plant upward of 7,000,000 tons of seed per year, most of this being the great staples, wheat, corn, cotton, etc., and practically all of these seed supplies being produced at home. Nevertheless we were accustomed before the war to import large quantities of seeds from Europe. For some vegetables, sugar beets, and other crops we depended almost entirely upon the European seed supply. Seed importations from Europe were curtailed or entirely cut off after the war.

How the Insecticide Act Benefits Both Farmer and Manufacturer

Both the farmer and the manufacturer, according to United States Department of Agriculture officials, have been benefited by the enforcement of the insecticide act of 1910.

Farmers have been supplied with insecticides and fungicides that will do what is claimed for them; and have been saved money by prevention of the sale of worthless, low grade, and short weight preparations, and by prevention of crop or live-stock losses through use of worthless insecticides or fungicides.

The legitimate manufacturer has been protected against the illegitimate manufacturer; confidence in insecticides and fungicides has been created among farmers and stock raisers, and sales have increased; valuable information regarding the manufacture and efficacy of insecticides and fungicides has been given to the manufacturer, enabling him to prepare good preparations and truthful labels.

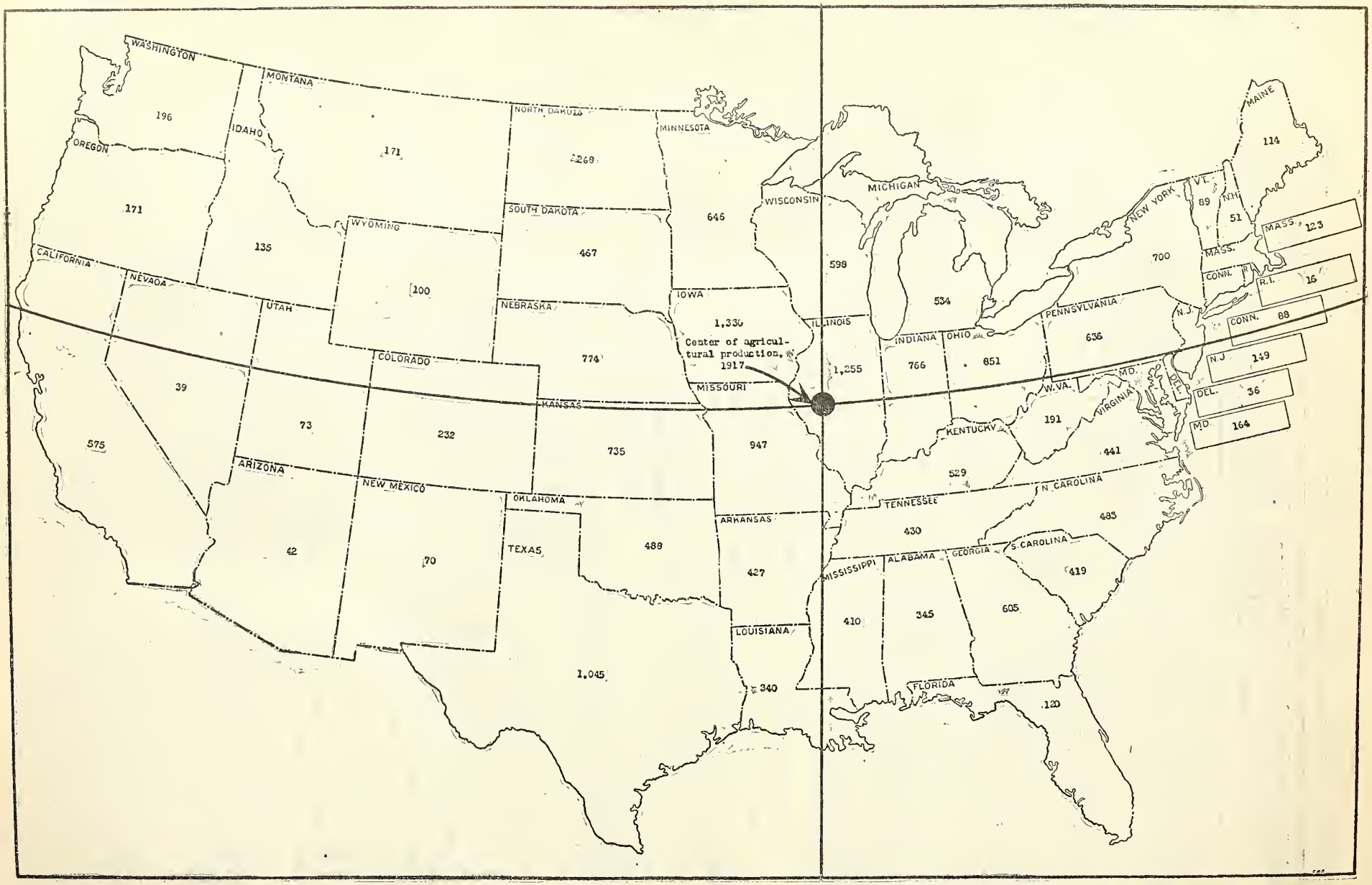
SEED OILS VALUABLE SOURCE OF FOOD

In experiments to determine the digestibility of oils made from corn, soy beans, sunflower seeds, Japanese mustard seed, rape seed, and charlock seed—oils not now commonly in use—the United States Department of Agriculture found that they are well assimilated, and in value compare favorably with other vegetable oils. These digestion experiments, reported in Bulletin 687 just published by the department, are a part of the series which is being conducted by the department to determine the digestibility of various foods. During the test period (three days) in which the oils referred to constituted practically the entire sources of fat, the subjects ate on an average of 58 to 90 grams per day, and did not report any ill effects. To judge by their digestibility these oils, according to the bulletin, should prove satisfactory sources of fat for the dietary.

Poultry breeders should be more careful than ever to secure thorough sanitation and thus prevent disease in their flocks. Good sanitation also checks the rapid multiplication of lice and mites, but does not destroy them. For this, an appropriate insecticide should be used.

APPROXIMATE CENTER OF AGRICULTURAL PRODUCTION, 1917, ACCORDING TO VALUE OF CROPS AND ANIMAL PRODUCTS.

NOTE.—The numerals in each State indicate its estimated value of crops and animal products in 1917, in millions of dollars.



WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. V JULY 31, 1918 No. 52

Department Announces Plan for Liberty Wheat Harvest in 1919

Minimum Fall Planting of 45 Million Acres and Maximum of 47½ Million Recommended

Smaller Area, It is Estimated, Would Yield 636 Million Bushels of Winter Crop, and Larger, 667 Million—Campaigns for State Quotas

A national plan for a great Liberty Wheat Harvest in 1919 was announced July 22 by the United States Department of Agriculture. American farmers are asked to sow to winter wheat this fall not less than 45,000,000 acres—an increase of 7 per cent over last year's sowing—and the department suggests that an even greater area, approximately 47,500,000 acres—an increase of more more than 12 per cent over last year—could be sown if conditions are especially favorable in all the States and would better meet the needs of the Allied Nations at war.

From the smaller acreage a harvest of 636,000,000 bushels might be expected, it is estimated, and from the larger acreage 667,000,000, based upon an average yield of 15.7 bushels an acre and an abandonment of 10 per cent of the area sown on account of winter kill. The plan fixes definite acreages by States, and in a campaign to be launched immediately by the department and the State agricultural colleges and leading farmers throughout the country, growers will be asked to make good their State quotas. The recommendations regarding the planting of spring wheat and other spring crops and regarding live stock will follow later.

Winter Instead of Spring Wheat.

The total acreages assigned to the several States, both minimum and maximum, are shown in the accompanying table with the percentage of increase over the acreage sown last year indicated for each State. In some States where a large increase of winter-wheat acreage is suggested, it is planned correspondingly to reduce the spring wheat acreage. Winter wheat is a safer crop and produces a larger yield per acre, so the exchange is desirable in sections where this is practicable. The unusual weather conditions of the last two years are responsible for the increased acreage of spring wheat this year in some sections where winter wheat usually is more extensively grown.

In announcing its wheat production program the department considers the growing needs of this country and its Allies for this essential food. The last crop report forecasts a 1918 harvest of 890,930,000 bushels of winter and spring wheat.

Although this forecast is gratifying, it is pointed out that the reserve supply or carry-over of wheat this year is practically exhausted and is the smallest on record. The need of building up reserves of wheat is evident. It is pointed out that although this country produced a small wheat crop in 1917, the total exports of wheat in excess of imports, including flour in terms of wheat, amounted to approximately 100,000,000 bushels for the year ending June 30, 1918. This is in comparison with 178,000,000 bushels exported in 1917, 236,000,000 bushels in 1916, and 331,000,000 bushels in 1915. It was only possible for the United States to export wheat in large quantities in 1915 and 1916 because of the large wheat crops of 1912–13–14–15, which gave this country an accumulation of stocks of this grain. The 1916 and 1917 crops both were

(Continued on page 13.)

IN building a substantial structure of agricultural betterment, the farm bureau, which at first the builders rejected, has become the head of the corner, and the county agent, no longer a mere farm advisor or dispenser of embalmed knowledge, is the recognized local leader of the educational forces, county, State, and National, for the upbuilding of a more prosperous farm business and a more wholesome and satisfactory home and community life.

"NO CALAMITY IN COTTON IF WE DO NOT LOSE OUR HEADS"

Mr. Ousley, in Texas Address, Is Hopeful of New Crop's Disposal

More Concerned, He Says, About Gathering Crop Than Disposing of it—Suggests Way to Take Care of Possible Surplus

Speaking on the cotton situation before the Farmers' Congress at College Station, Tex., July 29, Clarence Ousley, Assistant Secretary of Agriculture, said that as he sees the situation "no calamity impends if we do not lose our heads," and that he is "more concerned about the gathering of the crop than about disposing of it."

He offered a solution, even if there is a surplus of from 3 to 4 million bales, and says:

"If every farmer who raises 10 bales of cotton will put 2 in the warehouse and sell the remainder by installments from month to month throughout the winter and spring instead of forcing it all on the market at one time, the difficulty in even its worst aspects will disappear."

He thinks that if there is a surplus of cotton this year it must be absorbed by reduced production next year. Furthermore, he points out that the Government did not ask for so large a crop, and that in all fairness this fact must be recognized, the crop having been produced because the southern growers refused to heed the warning of agricultural leaders and economists.

Government's Aid Limited.

Nevertheless, Mr. Ousley points out, the Government is prepared to do whatever it can to help avert hardship, though its ability in this direction is limited, even though it exercises its war powers to the utmost. It must be remembered, he cautions, that not even the Government of the United States, with all its powers, can make two bales of cotton fit into the place where there is only room for one. By the aid of Government agencies, by judicious marketing, by withholding part of the crop for later development, by adjustment of next year's acreage, the South can come out whole and with profit.

There are not enough persons on the farms—men, women, and children—to

gather the crop, much of which must be lost, Mr. Ousley thinks, unless the people of the towns will help. The prosperity of every town in the cotton belt depends upon saving and marketing this important money crop, and it is imperative that the people of the towns organize for cotton picking. There is no labor that may be imported, and none that may be created by the Government or conscripted. On the other hand, there are enough men and women at useless tasks in the South who can turn in and save the crop. He did not doubt that they would do it when they perceive the need.

Text of Mr. Ousley's Address Before Texas Farmers' Congress

"It is an old saying that the average cotton farmer will not sell when prices are advancing and will not hold when prices are declining. From what I have learned during the last few weeks, I am inclined to the view that the cotton farmers to-day are resolved and are prepared to pursue a more rational course. I find little evidence that the actual farmer is the least panicky over the cotton situation. He remembers the sad experience of 1914, when we brought a big crop to market just after the world war broke, and because there was then more cotton than could be sold and delivered, we fell into hysterics and sacrificed a large part of it below cost of cultivation. If we had been wiser then, we would have retired a small part of the crop and sold the greater part of it at fair prices because, as a matter of fact, we had to hold a small part and ultimately we absorbed it in the reduced crops of the three succeeding years.

"Some people seem to have the notion that the situation now is as serious as it was in 1914. It does not so appear to me. But even if it were, if we will only profit by the experience of 1914 we can easily solve the problem.

Analyzing Statistics.

"Let us first analyze the statistical position. The July crop report indicated a production of 15,300,000 bales. That estimate is based upon an acreage of 6.2 per cent in excess of last year and upon a condition of 85.8 per cent compared with 70.3 per cent in 1917 and 79.8 per cent for the 10-year average. Unfavorable weather from this time forward during the growing season, or early frost, or both, might reduce that estimate a full million bales. The boll weevil has ample time yet to reduce the estimate a half million bales. Still we must accept the estimate as a probability.

"We had manufactured in the United States for the 11 months ending June 30, 6,049,544 bales. The consumption for June was 527,464 and the July consumption will probably be as much, and this means that for the 12 months ending July 31, we will have manufactured something over 6½ million bales. It is fair to assume that we will manufacture at least as much next year, and every condition indicates that we will manufacture more. I think it altogether safe to assume that we will consume of the new crop at least 7 million bales in American mills. We have exported for the 11 months ending June 30, 4,256,352 bales. By the end of July we will have exported something more than 4½ million. If we could not manufacture more than we manufactured last year, and if we could not export more, of course we would have a surplus of something like 4 million bales. I do not consider present stocks as constituting a surplus from the crop of 1917. The cotton on hand in consuming establishments on June 30 was 1,661,992, compared with 1,743,527 last year, and the cotton in storage for the corresponding dates was 2,117,300, compared with 1,402,403. In these two items we have only 633,362 bales more than we had at this time last year. That is a mere trifle in view of the increasing demand for cotton goods on account of the scarcity and high prices of wool and silk.

Shipping Problems Being Solved.

"Of course, no man can say with any certainty how much shipping will be available for export during the next 12 months, but we do know that at the present time the allied countries are constructing ships faster than they are being destroyed and that submarines are being destroyed faster than they are being built. I hope that we can maintain this rate of progress; in that event there may be considerably more shipping for cotton the coming year than we had during the closing year without jeopardizing or decreasing the military movements. We do know that Europe needs cotton. The total visible supply of cotton in the world on July 12 was 3,370,211 bales, compared with 3,026,904 bales in 1917, 3,651,272 bales in 1916, and 5,218,784 bales in 1915. Total European stocks on the same day were 443,000 bales, compared with 638,000 in 1917, 1,241,000 in 1916, and 2,688,000 in 1915.

"One million or two million bales of cotton in European stocks is no more to be regarded as a menacing surplus than a million to two million bales in American mills. In fact, any well-conducted manufacturing enterprise is not comfortable without having in hand its raw material sufficient for one to five months. In addition to the low stocks in Europe, everybody perfectly understands that stocks of dry goods in Europe are distressingly low. This is all to say that Europe can easily take and will gladly take two or three million bales more of our cotton this year than she has taken during the closing year if the shipping can be spared to transport it.

"If we can manufacture a half million bales more in United States next year and if we can export a million to a million and a half bales more next year, we will have provided for the greater part of the maximum prospective surplus of 4,000,000 bales. If we can thus increase exports and if the estimate of 15,000,000 bales should fall short a million bales by weather or weevil damage, there would be no surplus at all. But suppose that there is a surplus of three to four million bales. If every farmer who raises 10 bales of cotton will put 2 in the warehouse and sell the remainder by installments from month to month throughout the winter and spring, instead of forcing it all on the market at one time, the difficulty in even its worst aspects of apprehension will disappear.

Cool Counsels Must Prevail.

"I am sure that whatever the War Industries Board or any other function of Government may be able to do, will be done to avert a calamity to the cotton growers. As I see the situation, no calamity impends if we do not lose our heads. At the same time, while the Government may be depended upon to exercise the utmost of its war power to prevent loss, it must be remembered that not even the Government of the United States, with all its powers, can make two bales of cotton fit into the place where there is room for only one. If there is a surplus of cotton this year it must be absorbed by reduced production next year just as the surplus of 1914 was absorbed by reduced production in the succeeding three years. It is only fair to say that the Government did not ask for so large a crop. It was produced because our people in the South refused to heed the warning of agricultural leaders and economists. By such aid as may be rendered through Governmental agencies, by judicious marketing, by withholding for later development a small part of the crop, and by adjusting next year's acreage according to the known facts and probabilities as they appear at planting time, the South can come out whole and with a profit. But the South can not continue to produce more cotton than the world can take at a given time and have it validated by any fiat of Government.

Problem of Gathering.

"I am more concerned about the gathering of the crop than I am about disposing of it, for I have reason to believe that our farmers are prepared and are willing to act discreetly in marketing; but our farmers can not gather the crop. There are not enough men, women, and children on the farm. Much of the crop will be lost if people of the towns do not help. The prosperity of every town in the cotton belt depends upon saving and marketing this important money crop, and it is imperative that the people of the towns organize for cotton picking. There is no labor that may be imported, for labor conditions are substantially the same in every State. There is no labor that may be created by the Government or conscripted. We are at war, and we are using a large part of our man power for killing and destroying, and those who are not so engaged must help to save the crops. There are enough men and women doing perfectly useless things in the South to save the cotton crop. I do not doubt they will do it when they perceive the need."

PURPLE VETCH HOLDS PROMISE FOR SOUTHWEST AND COAST

It Has a High Feeding Value and Makes a Good Green Manure Crop

Coming From Italy, It is Less Hardy than the Common and Hairy Varieties—For Seed Production in Oregon, Washington, and California

Purple vetch gives promise of being a valuable addition to the list of crops that can be grown in the South and Pacific Coast States, where winters are not severe, according to Farmers' Bulletin 967, just published by the United States Department of Agriculture.

This vetch, which is similar to the common and hairy varieties, but is less hardy, was brought into the United States by the Office of Foreign Seed and Plant Introduction in 1899 from Italy. In California, where experimental work has been conducted, it has proved one of the best, if not the best, crop for use as green manure in orchards, and in commercial plantings it has been thought well of by the farmers who have used it. In western Oregon and western Washington it can be grown successfully as a seed crop, the yields averaging from 12 to 15 bushels an acre.

It has not been sufficiently tested in the Southern States to determine definitely its value in localities where common vetch is now being grown, but as it requires conditions similar to the common varieties, according to the bulletin, it seems probable that it may serve an excellent purpose in this region, as well as in the Western United States. It is of high feeding value and makes good hay in pasturage.

Stands 15 Degrees Above Zero.

Under average conditions, purple vetch will stand a winter temperature of 15 degrees above zero with little or no injury. Where the temperatures are not likely to fall below this mark, it should be sown in the fall. With colder winter conditions, spring seeding is essential. In localities where common vetch has been grown successfully and the necessary bacteria have been established in the soil, it is not necessary to inoculate for purple vetch.

Purple vetch should be drilled in close drills or broadcasted at the rate of 60 to 80 pounds of seed per acre. Harvesting can be done best with a comnon mower having a swather attachment. It should be cut for hay during the period from full bloom to the formation of the first pods. The yields average about 2½ tons of hay per acre. When harvesting for seed, the crop should be cut soon after the lower pods are ripe, at which time the upper pods will be mature and the plant will be carrying a maximum quantity of seed. Purple vetch is less exacting as to the time of cutting than common vetch, as the seed shatters less readily. Thrashing may be done with an ordinary thrashing machine.

LIVE-STOCK LOADING-REPORT SERVICE GOES TO CHICAGO

The headquarters of the live-stock loading-report service of the Bureau of Markets has been transferred from Washington to Chicago. The location of Chicago with reference to the territory from which most of the live stock of the country is shipped, together with its position as a telegraph-wire center, made this change desirable. The transfer will produce greater efficiency in the operation of the loading-report service, and facilitate the preparation of the telegraphic reports on the estimated receipts at Chicago. These are a part of the market-report service on live stock at that market which the bureau has been furnishing since June 1.

This live-stock market-report service at Chicago consists of a series of reports sent out at regular periods during each market day. The first report, which is a 6 o'clock wire on the estimated receipts, is sent out to those cities reached by the bureau's leased wires and is largely for the benefit of the eastern trade, whose time is one hour in advance of that at Chicago. The second report, a 7 o'clock wire on revised estimated receipts, is sent to all markets and is the first report sent out by the commercial news departments of the telegraph companies.

The 8.30 and 10.30 messages complete the service furnished the telegraph companies for their commercial news departments. The 8.30 report gives the opening hog market and the revised estimated receipts, while the 10.30 report gives market conditions and prices on all classes of live stock. The press associations are furnished a report about 11.30 a. m. for the afternoon papers and a closing market report about 3 p. m. for the morning papers. The same reports which are furnished the telegraph companies are sent over the bureau's leased wires and in addition there is a closing market wire transmitted as early in the afternoon as a closing report can be made.

Prior to the taking over of this service by the Bureau of Markets, the first report sent out by the telegraph companies included a market prospect which was much criticised by producers and members of the trade as being unreliable, and as being based on some one's guess rather than on authentic information. This prospect was discontinued at the suggestions of stockmen and the trade when the Bureau of Markets began to furnish the live-stock market reports. The majority of the members of the live-stock trade have expressed approval of the elimination of the prospect report, and when the public becomes accustomed to the new service and understands that the reports are prepared by unbiased Government officials from authentic information heretofore unavailable, greater confidence in the live-stock market reports sent from Chicago will be established.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended July 27, 1918:

A Comparison of Several Classes of American Wheats and a Consideration of Some Factors Influencing Quality. Department Bulletin 557.

A Study of Prices and Quality of Creamery Butter. Department Bulletin 682.

The Agricultural Species of Bent Grasses. Department Bulletin 692.

Growing High-Grade Potato Seed Stock. C., T., & F. C. D. Circular 5.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

LIGHT PEACH CROP REPORTED.

The 1918 peach crop will be about two-thirds that of 1917, according to a special peach forecast for the United States recently made by the Bureau of Crop Estimates of the United States Department of Agriculture. It is estimated that the 1918 peach crop for the United States will be 20,754,000 bushels as compared with the yield in 1917 of 29,042,000 bushels. In some peach-growing sections an increased production this year over 1917 is reported. The crop in Georgia is estimated to be the heaviest ever produced in that State. Up to and including July 6, over 6,300 cars had been shipped from that State and it is estimated that the total will reach 8,450 cars. The crop in Texas is estimated at about 1,600 cars as compared with 800 last year. Beginning in New England and continuing southwest as far as Missouri and Arkansas an unusually light peach crop is reported.

The Virginia Bunch and Virginia Runner are the only varieties used to any great extent as roasted peanuts, and these two varieties constituted only 44 per cent of the total crop in 1916.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation, Marketing and Preparation the Next Few Weeks

NORTH AND WEST

The Office of Extension Work, North and West, United States Department of Agriculture, calls attention to the following matters which are engaging the attention of farmers and county demonstration agents in many parts of the Northern and Western States during the present month.

Now is the time to begin plowing stubble land for fall wheat. It has been proved both by research and practical demonstrations that early plowing of wheat land, followed by frequent harrowing, is an important factor in increased yields. It saves moisture and gives time for the ground to settle into a firm seedbed so desirable for wheat. It is now certain that the acreage of winter wheat needed by ourselves and our Allies will be fully as great as that planted last year, if not greater.

Where wheat is uncertain, rye may well be sown in the standing corn. In time of war, with the uniform tendency toward decreased food production, of all warring nations, America should exceed her peace time production of both wheat and rye. Rye and rape seeded together also make a splendid fall pasture for sheep and swine. Cowpeas, likewise sown in standing corn, in sections where this crop thrives, makes an exceedingly valuable pasture for sheep, lambs, and swine.

Potatoes will again be needed in great abundance this year. They are wheat savers—the nation needs them, and with the difficulties of last winter in shipping, fresh in mind, there is reason to believe special effort should be made to move the crop in a timely way this year. The nation can easily absorb an extra fifty to one hundred million bushels with proper distribution assured. There should be no let up in the cultivation and spraying of this crop.

MORE SILOS NEEDED.

The demands of the live stock for the coming winter need to be anticipated in many parts of the country. The silo provides safe storage for forage that can not be as effectively stored in any other way. In addition, the material stored in the silo is a more acceptable feed, especially for dairy animals, than the same feed prepared in any other way. Silage is an almost ideal substitute for the natural summer stock feeds, and is especially valuable in the fall and winter because of its succulence and consequent healthfulness.

TRIM THE BERRY BUSHES.

As soon as the raspberry crop is gathered, cut out all of the old canes, those which have just fruited, and burn them so as to destroy any diseases and insect eggs or immature insects on them. The old canes will die in a short time if left, but in the meantime will rob the new shoots of much nourishment. When the new shoots reach a height of from 3½ to 4 feet, pinch out or cut off the growing tip to cause the shoots to branch. Cut out, also, all of the weak shoots, leaving only the strong ones.

Give blackberry bushes the same treatment.

RENEW THE OLD STRAWBERRY BED.

Clean up the old strawberry bed for another year's fruiting, unless a new bed was planted last spring. If the rows have become wide and matted, run a cultivator with large pointed shovel through the center of the rows to tear out the old plants, but leave the young plants at the edges of the row to make the new rows. If the matted rows are only moderately wide, run the cultivator or plow along one side, cutting down the row from one side only and leaving the young plants on the other side. Either pull out or hoe out the weak and surplus plants, leaving strong plants from 6 to 12 inches apart in the new rows. Mow off the leaves of these plants at once. New plants will be produced by these to make new rows for next year's fruiting.

Give the new bed thorough cultivation.

It is believed that the blend of Virginia and Spanish peanuts makes a better product of peanut butter than any variety alone.

THE 10 favorite fruits eaten by birds, judged by the number of different kinds of birds known to eat them, are, in order, raspberry and blackberry, elderberry, dogwood, sumac, grape, cherry and plum, bayberry, blueberry, mulberry, and pokeberry. It will pay to have some of them around to help attract the birds, the best policemen the farmer has to protect him from robber insect pests.

IN THE SOUTH

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

Experiments conducted by the Bureau of Entomology for several years, show quite definitely that late season applications of poison in the form of calcium arsenate or other forms of lead arsenate give a pronounced degree of boll weevil control and a material increase in the yield of cotton. The poison in the form of fine powder is applied as a dust spray. Many details regarding number and method of application, and time of day and period of growth when applications should be made, remain to be more definitely determined by further experiments.

The results of all experiments, however, seem to indicate that from three to five applications at the rate of about 5 pounds per acre made at weekly periods beginning late in July will give the best results. From about 4 p. m. until 9 a. m. seems to be the most favorable period of the day in which to make the application. Apparently moisture is important in securing any considerable degree of mortality from the application of the poison.

This discovery materially extends the period for fighting the weevil. Under the method usually employed of picking weevils and squares and continuous cultivation, efforts to control the weevil necessarily ended from July 15 to August 1. The results of the experiments made by the Bureau of Entomology tend to show that the most profitable time for applying the poison would be from that time on. Whether the control given by this poisoning will make it unnecessary to conduct the usual fight against overwintered weevil by picking up and destroying the early infested squares is not yet certain. The probability is, however, that a combination of the two methods will prove most effective.

FALL GARDEN IN THE SOUTH.

While practically all of the common vegetables can be grown satisfactorily in the autumn in the South, a good fall garden is the exception rather than the rule. It is just as important, or possibly more important, to have a good fall garden as it is to have

(*Continued on page 5.*)

Control the Stable Fly and Conserve Fodder by Proper Stacking of Straw

Care in stacking straw at thrashing time preserves it for use as roughage for live stock and for bedding and may also prevent scourges of biting flies, known as stable flies. The Bureau of Entomology of the United States Department of Agriculture has shown that most of the stable flies which sometimes appear in great numbers, breed in fermenting straw. The department urges that more attention than usual be given to caring for the straw this season.

Make Stacks Shed Rain.

As only a small part of the straw produced in the grain belt can be baled immediately or placed under cover to prevent weathering, straw stacks should be built so that they will shed rain. One or two men should spread the straw evenly over the stack, tramp it, and keep the sides straight. The blower should also be regulated to obtain even distribution of the straw over the stack. The stack should be finished by rounding off the top and hauling away or spreading thinly any loose straw that may be left around the base. Baling the straw direct from the thrasher saves time and prevents possible injury from weathering, but the expense of baling is too great to justify its common use. If the straw is baled after stacking, any part which is spoiled should be spread as manure or should be burned.

Stable flies prefer to breed in oat straw, but may breed in wheat, barley, or rice straw. In nearly all serious outbreaks it has been found that the straw in which the flies bred was not stacked properly and that it was soaked by heavy rains which fell soon after thrashing. In many cases the stacks were wet completely through and thus spoiled for feeding.

Stable flies also breed in horse manure, especially in strawy manure, so that hauling the manure and spreading it on the fields before late summer helps to reduce their number and prevent annoyance to horses and cattle. As house flies also breed in manure, hauling the manure from the stables and yards aids in keeping down this pest.

LOOKING FORWARD IN FARMING

(Continued from page 4.)

a good spring garden, because it is during the winter that there is the greatest shortage of food. During the period of the war, when there is such a great need for increased food production, it is important that every home gardener do his utmost to make his family as near self-supporting as possible. A good home garden will produce a large part of the food needed for the family and will relieve the transportation facilities. If vegetables are not produced, other food must be shipped in to supply the needs of the southern people. It is not only the patriotic duty of everyone who has garden land to produce all of the vegetables needed by the family, but it is good business. The more vegetables that are grown and consumed, the less wheat and other staple foods will be needed.

Now is the time to plan for the fall garden. Plan to grown all of the vegetables needed during the growing period and to have a surplus of root crops and cabbage to store for use during the winter. If the spring and summer garden did not furnish sufficient vegetables for canning and drying to meet the needs of the family during the winter, plan to produce them in the fall garden. As fast as the spring-planted crops mature the available space should be planted to other crops. In other words, keep the garden land working all the time.

In the cooler portions of the South it is now time to plant late cabbage, late potatoes, sweet corn, beans, beets, carrots, cauliflower, celery, kohl-rabi, and brussels sprouts. Turnips, kale, mustard, and spinach might be planted in August and early in September in the upper South. These crops will not be killed by the cold ordinarily experienced in any section of the South, so will be available all the winter.

In the lower South it is too early to plant most vegetables for the fall garden, but it is time to begin preparation of the land and to plan the garden. However, sweet potatoes may be set out now, and seed of cabbage, cauliflower, celery, brussels sprouts, and kohl-rabi should be started for planting later. If seed is not already on hand, every gardener should decide at once on the crops to be grown and order the seed so as to have it on hand when planting time arrives.

Gardeners in all sections of the South should have plenty of beans, cabbage, potatoes, sweet potatoes, beets, carrots, turnips, spinach, kale, and mustard to use throughout the fall, and a sufficient supply of most of them to last through the winter.

If in doubt regarding what and when to plant in order to have a good fall garden, consult your neighbors who have had experience in gardening, or get in touch with your county agricultural agent, the State college of agriculture, or the United States Department of Agriculture.

GRAZING CROPS FOR HOGS.

Hog pastures conserve grain and produce cheaper pork. Hog raisers should plan a succession of crops to be harvested by the hogs feeding on them in the field or "hogged down." Early cowpeas, soy beans, and sorghum planted in July in narrow rows and cultivated once or twice will produce good fall pasture for hogs.

A wide variety of crops can be planted in September for late fall and winter grazing. Oats, barley, rye, vetch, crimson clover, bur clover, red clover, cow-horn turnips, or rape can be planted in all parts of the South, either separately or in combination, and will produce excellent pasture for hogs.

ALFALFA AND CLOVER.

Now is the time to plan for the alfalfa, red clover, bur clover, or crimson clover to be sown in the fall. Lay in your supply of seed; keep the soil in good condition for planting, so that the crop can be seeded on time.

SEED SELECTION.

As the corn crop begins to develop toward sound grain in July, farmers should watch the fields and prepare for careful seed selection when the grain is mature. Mark the good stalks early and be ready to store away sufficient seed corn in a safe place for next year.

Peanuts are cultivated from three to six times; hence the great saving that comes from using large implements.

As the type of animal necessary for the production of large yields of milk is entirely different from that of the beef animals, it has been impossible to produce a breed which would combine these functions and be of superior merit for both purposes.

TO INCREASE POULTRY AND EGG SUPPLY.

Every commercial breeder, every farmer, every back-yard poultry raiser, is urged to keep these aims steadily in view:

1. Keep better poultry. Standard-bred poultry improves the quality and increases production.

2. Select healthy, vigorous breeders to produce strong chicks.

3. Hatch early to produce fall and winter layers.

4. Preserve eggs when cheap for home use.

5. Produce infertile eggs, except for hatching.

6. Cull the flocks to eliminate unprofitable producers.

7. Keep a small back-yard flock to supply the family table.

8. Grow as much poultry feed as possible.

9. Eat more poultry and eggs to conserve the meat supply.

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Advisory Committee Reports Its Recommendations to Departments

Secretary Houston has received the recommendations of the Agricultural Advisory Committee reported to the Secretary of Agriculture and the Food Administrator at the conclusion of its meeting in Washington June 27 to July 2. The following are among the most important subjects considered by the committee:

1. Appointment of Mr. Stuart Indorsed.

Indorsement of Henry C. Stuart, Chairman of the Agricultural Advisory Committee, for appointment on the War Industries Board as Representative of Agriculture.

Following is the text of the resolution:

"*Resolved*, That the full committee indorses the action of the executive committee in asking for the appointment of the Hon. Henry C. Stuart, the chairman of the committee, upon the War Industries Board."

2. Furloughs for Agricultural Workers.

Facts were submitted to the committee showing that the harvest of spring wheat would come at a season when soldiers would probably just be entraining for military services, and they would therefore be lost to the wheat harvest in the spring wheat region. The committee, therefore, passed a resolution to be presented to Provost Marshal General Crowder asking that temporary deferred classification be granted to the men called July 22–27, before their entrainment, that they might help in the harvest before leaving home, rather than to report at their cantonments and then be furloughed back, thus saving expenses to the Government and preventing a loss of time for the men.

3. Improvement of Transportation Conditions.

A full discussion was had of the unusual car shortage and the delays in the shipments of live stock and grain during the past winter resulting in large financial loss to the producers. Attention was called to the fact that transportation conditions were still unsatisfactory, and the Department of Agriculture and the Food Administration were requested to take up this matter again with the Transportation Administration, with the view of insuring relief in these matters. A subcommittee on transportation was appointed, of which Henry C. Stuart was chairman, to act with the two departments in placing this matter before the Director General.

4. Investigation of Wool and Hide Situation.

Consideration was given to criticisms that had been made in regard to the application by Division Heads of the Rules and Regulations of the War Industries Board regarding wool. There seemed to be ground for believing that some of the interpretations of the rules worked a hardship on the wool growers. A subcommittee was appointed to look into this matter and make such recommendations as seemed to them necessary to a readjustment of the matters complained of, and a recovery of losses incurred, if any.

5. Prices and Grades of Wheat.

The committee devoted a large portion of its time during the first three days of its session to a discussion of the grades and prices of wheat in which Mr. Hoover, and members of his staff, with representatives of the Grain Division and the Bureau of Markets of the Department of Agriculture participated. Practically all of the recommendations of the committee were provided for in the final draft of the announcement issued July 1.

A subcommittee had formulated an expression of suggested explanations, of terms and conditions that were thought to be helpful in giving the farmer a clear understanding of the regulations, and his personal status in their administration.

These suggestions were heartily indorsed by the full committee and the Food Administration.

6. Prevention of Tuberculosis.

A resolution was passed giving indorsement of the plan of the Bureau of Animal Industry, for stamping out tuberculosis in cattle. Suggestions were made that some of the plans might be slightly modified in the matter of facilitating the disposition of tubercular animals.

7. Farm Machinery.

"WHEREAS the Department of Agriculture has submitted for our consideration a proposal for the elimination of certain lessessential types or designs of farm machinery and parts thereof, giving as a reason therefor, that because of the war demands the allotment of steel for the manufacture of farm machinery must be limited to the amount strictly necessary to enable our farmers to maintain crop production, and that the multiplicity of types and designs now existing places an unnecessary burden upon steel mills in preparing steel and iron therefor, and whereas we believe the reasons given are just and valid, and that the demand upon us is in line with the demands made upon other industries, therefore,

"*Be it resolved*, That we endorse the schedule of eliminations submitted by the Department of Agriculture with certain minor changes, with the understanding and with the assurance on the part of those who have prepared the schedule that no change in design of any implement has been made which will lessen its strength or efficiency, and no machine or implement has been eliminated which is essential for the efficient production of agricultural products in any extensive region and the work performed by which can not be as efficiently done by other machines, the manufacture of which shall be permitted. We recommend, however, that measures be taken to afford full protection to farmers owning machines of types eliminated by requiring that manufacturers make and place on the market repair parts for eliminated machines or eliminated parts of machines for a length of time equal to the average normal life of such machines or parts."

Repair Parts of Farm Machinery.

The committee passed resolutions urging the Department of Agriculture to insist on the standardization of parts of farm implements, such as cultivator teeth, mower and harvester guards, mower and harvester sections, threads on bolts, skeins on wagons, surface cultivator knives, and many other parts on which patents have expired. It was the opinion of the committee that this would result in very material economy in every way and increased convenience to the farmer in securing implement parts.

8. Cost of Machinery.

After discussing the prevalent prices of farm machinery and the advances made during the past three years, the committee passed a resolution asking for an investigation at the earliest possible date into the cost of manufacturing farm implements and asked that the industry be required to operate on a basis of cost plus a reasonable profit.

9. Perishable Products.

The committee recorded its appreciation of the good work done by the Food Administration in increasing the consumption of potatoes, thus partially relieving the stress arising from the production of a heavy spring crop in the South, with large storage stocks held over in the North.

The promotion of war gardens was commended, as it was believed by the committee that the results not only showed a larger supply of fresh vegetables, but converted many acres to the growing of staple crops that helped to increase the total food supply and to lessen transportation difficulties.

The Department of Agriculture was commended for its work in the selection and

breeding of potatoes in the various potato-growing sections.

Much interest was expressed in the dehydration of vegetables, especially potatoes, and it was recommended that this work should be followed up.

Record was filed briefly reviewing the poultry conditions of the country, showing that although the price of poultry had not advanced in keeping with the price of feeds, more eggs have been shipped and stored than at the same time in 1917, this being partly due to the early, warm season and partly to the patriotic adherence to the industry in spite of adverse conditions.

A resolution was passed expressing the opinion of the committee that the vegetable forcing industry was important, and so blended with the forcing of plants for field crops that the industry should be fostered and protected as far as the exigencies of the war may permit.

10. Labor for Wheat Harvest.

On reports of members of the committee from the West and South where wheat has already been harvested, regarding the highly efficient service rendered by the Farm Labor Division of the United States Department of Agriculture and the Federal Department of Labor, in the mobilization and distribution of harvesters to the wheat fields of the South and West up to the present time, the committee asked for a continuation of this service to the completion of the harvest in the spring-wheat region.

11. Exchange Milling.

The following resolution was adopted by the committee:

"Whereas absolute war necessity and shortage of wheat for export has required that in the exchange milling of his own wheat the farmer be restricted to a supply of flour equal to his household needs and those of his farm employees for 30 days; and

"Whereas the present crop prospect seems to make this necessity less acute.

"*Be it resolved*, That the Food Administration be requested to remove this restriction as early as conditions will allow."

12. Freight Rates on Fertilizers.

The committee was of the opinion that ground rock phosphate and acid phosphate should have the same freight classification as agricultural lime, taking an increased freight rate of 1 cent a hundred pounds, instead of an increase of 25 per cent, as applied to general commodities, and it was directed that request be made of the Director General of Railroads that the desired classification be granted.

13. Dairy Products.

Resolutions were passed by the committee favoring—

(1) Regulation of the use of mill feeds by the mixers of proprietary feeds, so as to secure to the dairyman the benefits of the efforts of the Food Administration to lower the price of mill feeds.
(2) Regulation of the manufactories of mixed feeds.
(3) Equitable distribution of mill feeds.
(4) Use of sugar substitutes in ice-cream manufactories.
(5) The disallowance of sugar to manufacturers of ice cream failing to comply with reasonable standards of butter fat and solids not fat.
(6) Purchase of dairy products by Army and Navy.
(7) Expression of appreciation to the Food Administration for the publicity given to the economic value of milk.
(8) Recommendation to the Government to extend the standardization of dairy and other agricultural products.
(9) Commendation to the market-report service by the Bureau of Markets.

The subcommittee on dairy products presented to the tariff department of the Railroad Administration an explanation of the hardship upon the small shipper of milk and cream because of the minimum charge of 50 cents on any individual shipment.

The regulation was promptly modified so as to nullify the application of a minimum charge.

Buy Agricultural Lime Early—Assure Supply and Save Cars

Unless the farmers of the country are forehanded in ordering needed supplies of lime, says the United States Department of Agriculture, they may be unable to get it when they want it.

The companies supplying agricultural lime recognize two periods of demand for lime—early spring and late summer. Ordinarily farmers, to conserve labor and to make the hauling and application of the lime all one operation, order their supply at the time they wish to apply it.

In ordinary years the lime manufacturers can adjust their business to this practice. Now, however, with transportation difficulties, shortage of labor in their own plants, and difficulties in obtaining fuel for lime burning, the companies can not make last-minute deliveries. Furthermore, the needs of increased crop production have increased the demand for lime products and this also has added to the difficulties of supply.

For all of these reasons the department urges that the fall lime be ordered as soon as possible, and that the spring needs be anticipated also. In the Northern States this is particularly important, so that the necessary movement of coal shall be interfered with just as little as possible. Dealers and manufacturers should have advance information as to farmers' needs, so that orders can be combined and car space used to best advantage. Delays in ordering may result in failure to obtain supplies until too late.

KEEP UP MILK FLOW DURING DROUGHT WITH SUMMER SILO

Investment in a silo now will prevent loss of milk when drought causes a shortage of pasture next summer. It will pay in many sections to provide an extra silo and fill it this fall, using the silage next summer. In this way a means will be provided to keep up the milk flow throughout the entire season.

The droughts of late summer always result in a marked decrease in the milk flow of herds that depend chiefly on pastures. This loss can not be recovered by good feeding at a later period. The milk production for each remaining month of the lactation period will be smaller than if no decrease had occurred during the dry season. It is very important, therefore, that it be prevented. This can be done best by supplying a succulent feed to supplement the pasture. In most sections the most satisfactory supplement is corn silage. It is much cheaper, requires less labor, and is just as efficient as soiling crops. With the latter, great care in planting is necessary to provide the proper succession and in addition they must be harvested as used, which requires much time at a busy season.

Be sure that the silo is small enough in diameter so that a layer 2 inches deep will be fed off each day, because silage spoils quickly in warm weather. Look ahead; plan for the next year now.

The average beginner can reasonably expect to get an average of at least 10 dozen eggs per hen a year from a small flock in the back yard. Every back-yard poultry keeper should try to get as much more as possible.

Because of the increasing world shortage of fats and oils and with the large crop of peanuts grown in this country in 1917, the peanut-oil output in 1917–18 is expected to be much larger than that of any previous season.

The more intensive use of farm land and effort to secure the most economical use of every acre, as well as all available labor will necessitate the general inclusion of sheep in our system of mixed farming and live-stock production.

Plans are Announced for Wheat and Flour Control for the 1918 Wheat Crop

The following has been issued by the cereal division of the United States Food Administration:

It is, of course, generally known that the value of wheat of various grades and varieties depends upon three factors: First, the relative distance from the consuming markets, because of the differences in freight rates to the points named below; second, the variety of the wheat and its relative value for flour production; third, the grade of the wheat as to quality and impurities within the various varieties.

These differences have been established by years of custom and experience, and it is the object of the Food Administration, in giving effect to the law, to equably reflect these differences in value as far as physically possible.

In order to simplify accounting and to avoid "red tape," the President authorized the creation of the United States Food Administration Grain Corporation, as an instrument of the Food Administration, to carry out the financial details of buying and selling wheat and various cereal commodities. Therefore, contracts and payments are made in the name of the United States Food Administration Grain Corporation, which operates without profit, charging such differentials as will cover risks, storage, and insurance.

Likewise the United States Department of Agriculture, acting under the Grain-Standards Act, has endeavored to establish wheat grade definitions according to relative merits of various qualities and varieties of wheats.

Basis for Wheat Buying.

The following are the fair-price bases and wheat classes and grades on which the Food Administration Grain Corporation will buy wheat in elevators at the points named:

1. The wheat grades are those adopted by the United States Department of Agriculture, under the Grain Standards Act, by the revised grades, effective July 15, 1918.

2. The Food Administration "fair prices" are named below for "basic" wheats and the market relations fixed as follows:

New York	$2.39½	Omaha	$2.18
Philadelphia	2.39	New Orleans	2.28
Baltimore	2.38¾	Galveston	2.28
Newport News	2.38¾	Tacoma	2.20
Duluth	2.22¾	Seattle	2.20
Minneapolis	2.21½	Portland	2.20
Chicago	2.26	Astoria	2.20
St. Louis	2.24	San Francisco	2.20
Kansas City	2.18	Los Angeles	2.20

Basic Wheats.

No. 1 northern spring,
No. 1 hard winter,
No. 1 red winter,
No. 1 durum,
No. 1 hard white.

Intermountain basis f. o. b. outgoing car $2.

The above are for "basic" wheats. Certain other classes and varieties of wheats will be dealt in at premiums over, and others at discounts under, the above prices.

The "premium" wheats are as follows:

	Premium.
No. 1 Dark Hard Winter	2 cents.
No. 1 Dark Northern Spring	2 cents.
No. 1 Amber Durum	2 cents.

The "discount" wheats are as follows:

	Discount.
No. 1 Yellow Hard Winter	2 cents.
No. 1 Red Spring	5 cents.
No. 1 Red Walla	7 cents.
No. 1 Red Durum	7 cents.
No. 1 Soft White	2 cents.
No. 1 White Club	4 cents.

Discounts for Grades Other than No. 1.

No. 2 Wheat, 3 cents under No. 1.
No. 3 Wheat, 7 cents under No. 1.
Grade below No. 3 will be dealt in on sample on merit.

NOTE.—The grade discounts for No. 2 and No. 3 are made with the expectation that mills and dealers will absorb the better qualities of these grades at a premium over theso fixed differences at which the Government will buy, and with the expectation that the qualities tendered to the Government will approach the minimum of the grade. It is also expected that the character of the wheat going into No. 4 and No. 5 grades will be of such wide range that it would not be fair to the producer to name a fixed price at which the Government will buy. It has therefore been left to the discretion of the Government representatives to buy the wheat which is represented by the No. 4 and No. 5 grades, as well as wheat which is represented by "sample," on the basis of their judgment as to its proper value.

Where the term "primary markets" is used in this statement it refers to points at which the Grain Corporation maintains buying agencies, as named above.

Details of Buying Plan.

The Food Administration Grain Corporation will buy on the above fair price bases at the principal primary markets as named.

The Food Administration Grain Corporation will buy warehouse receipts in approved elevators at the principal primary markets as named above. In the intermountain territory, where there are no public storage facilities available, an adjustment will be made to make effective the $2 minimum for the No. 1 grade f. o. b. outgoing car, available for transportation to a public terminal elevator. The intermountain region comprises Southern Idaho, Western Montana, Western Wyoming, Nevada, Utah, Western Colorado, New Mexico, and Arizona. Further details can be obtained at Grain Corporation offices.

At all these principal primary markets there is an open market where all classes of buyers are well represented, and the producer and the consumer will be amply protected through the competitive activities of the several interests, the Food Administration Grain Corporation being prepared to buy and protect the "fair price" basis.

As the miller is restricted to a "fair price" basis for his flour, he can not pay more for wheat than the expense of milling and a reasonable profit will allow.

The farmer can protect himself by the study of the primary prices, deducting intermediate charges, or he can ship to the Food Administration Grain Corporation, or he may ship to a commission merchant at a terminal market, and through him secure the benefit of competitive buying.

There is nothing in the "1918 plan" which prevents a buyer at point of origin from placing his own grade upon the wheat which he purchases. If, by the buyer's act, the grade is raised, it is equivalent to an increase in the price. If the buyer lowers the grade, the producer's or dealer's protection is to ship to the Food Administration Grain Corporation.

Marketing Direct to Food Administration.

Producers or dealers have the right to bill cars of wheat direct to the Food Administration Grain Corporation at any of the principal primary markets named above. When the wheat is unloaded in the elevator, and weight and grade returns are made to the Food Administration Grain Corporation, remittance will be made on the basis of weight and grades so reported, and on the basis of the Government price, less 1 per cent administration charge for the service.

The Government does not discriminate between shippers in matters of transportation.

Traffic Bureau Maintained.

The Food Administration maintains a traffic bureau for the purpose of assisting shippers of grain and flour in securing their car supply, and also in expediting the movement of shipments to destination. Application for assistance can be made to Food Administration Grain Corporation offices in each primary market.

Charges for Handling.

Country elevators and buyers are entitled to receive fair compensation for their services in the handling and marketing of wheat, and the charges for such service are necessarily a deduction from the terminal price of wheat. These charges or margins are well

established by custom, and vary in different sections of the country according to local conditions.

Insurance.

The Government carries no insurance on the property which it owns. It does, however, require that the elevator operators shall exercise due diligence in protecting grain stored in their warehouses from ordinary hazards. Owners of grain stored in warehouses or elevators should therefore protect their grain so stored which has not been delivered to or paid for by the Food Administration Grain Corporation.

Inspection.

Shippers to any of the principal primary markets should insist that their grain be inspected and graded by inspectors licensed by the Secretary of Agriculture.

Producers and dealers, in shipping grain to said primary markets, should advise their commission man to see that their grain is correctly inspected and graded, and that if in his judgment the grain has been improperly graded, an appeal should be taken to the Federal supervisor.

It is the policy of the Food Administration and of its agents and representatives to work in entire harmony with the Department of Agriculture in maintaining the integrity of grades named and defined by them under the grain standards act, in order that the producer, the consumer, and all interests handling grain may be properly protected.

The producer or dealer should always keep in mind, that if he is not satisfied with the prices paid by individual buyers, or with the grading of wheat, his protection lies in his being able to ship to the Food Administration Grain Corporation at the various terminal markets named above.

Flour Milling Profit Control.

The plan for the profit control of flour milling for the 1918 crop is formulated on the basis of naming a maximum "fair price" at which any miller may sell flour and feed.

This maximum "fair price" is based upon a reasonable allowance, above the fair price for basic wheat, for handling, milling, and marketing expenses, freight charges on products, and profit. It is anticipated that competition will eventually reflect reductions from these prices.

A temporary plan has been published along these lines, which will be supplemented in the near future by the naming of detailed maximum prices, at which it will be considered fair for each mill of the country to sell its flour and feed.

This plan, as soon as completed, will be given general publicity.

The "1918–19 plan of control" and this statement have been prepared with the approval of the Agricultural Advisory Committee and with their cooperation.

Farm Labor Men Adopt Plan for Harvest Help Drive in the South

Farm-help specialists from the Southern States, in the United States Department of Agriculture's harvest labor conference held in Birmingham July 18 and 19, adopted the following as an outline of the campaign to be waged until all of the South's big cotton and food crops have been gathered:

"Cooperation between farmers and city people, to be brought about through coordination of all agencies furnishing points of contact, with crop and other agricultural programs to be worked out as the combined result of community effort.

"Use of all feasible labor-saving devices and improved farm machinery.

"Intelligent direction and conservation of labor to eliminate waste and maintain highest efficiency.

"Rearrangement, so far as possible, of the system of farm management so as to keep labor employed profitably the whole year.

"Provision for better living conditions on farms to make workers more efficient and better satisfied.

"Cooperation in exchange of labor and implements between farmers.

"Recognition that the work of the farm-labor specialist is primarily an extension effort and should be organically and intimately connected with the agricultural extension service in each State, so that other branches of the extension service may be brought into closer cooperation with farm labor work."

The farm-help specialists also adopted a resolution urging the importance of stabilizing farm labor by providing better houses and more privileges for tenants and laborers, and calling for consideration of definite plans to eliminate losses caused by shifting workers.

Make Good Labor Losses.

The specialists have returned to their States to resume their work of helping southern farmers meet the conditions caused by the transfer of tens of thousands of men from the farms to the Army and war industries. It is expected that they will center their efforts, this year at least, on mobilizing able-bodied city men to help out, at usual wages, at periods of greatest need for farm help.

Prof. G. I. Christie, Assistant to the Secretary of Agriculture, who supervises the farm-labor activities of the department under Assistant Secretary Ousley, emphasized, in a talk to the specialists, the importance of increasing efficiency in the use of man power. Speaking of the thousands of "one-mule farms" in the South, he said that present conditions demand that all men capable of managing farm operations should direct larger working forces of men, mules, and machinery.

"Emergency help secured through boys, women, and men of the cities is of great value," he said, "but this labor will not serve in the larger management of the land. Canada, from its comparatively small population, has sent 500,000 of its best men to the war, and two of three have been from the farms. Despite this, Canada, in 1917 produced 5 per cent more foodstuffs than in any previous year. What Canada has done the United States can and must do."

The specialists sent to the Secretary of Agriculture a telegram telling of the increased plantings of food crops in the South and the probability of its safe harvest.

FARM HELP SPECIALISTS WIRE SECRETARY HOUSTON OF BIG CROPS ON FARMS OF SOUTH

The farm help specialists of the southern States, who conferred July 18 and 19 at Birmingham, Ala., with Prof. G. I. Christie, Assistant to the Secretary of Agriculture, sent the following telegram to Secretary D. F. Houston:

"The farm-help specialists in conference here believe that you will be glad to learn that the reports submitted from all southern States insure an increased acreage and production in food crops over last year. In spite of extreme labor shortage, crops have been better cultivated than ever before and will be carried through the harvest without loss."

In reply Secretary Houston wrote to Prof. Christie as follows:

"I received this morning a telegram signed by 12 farm-help specialists regarding the crop and labor situation in the South. I greatly appreciate their courtesy in sending me this information. It is gratifying to note that farmers, with the assistance of the department and of the agricultural colleges, are doing such excellent work, especially in the matter of providing home supplies.

"The farm-help specialists have rendered and are rendering valuable service in the solution of farm-labor difficulties, and I hope you will express to them my appreciation of their efforts."

As a matter of business foresight and economy, as well as of patriotism, farmers who increase their production of poultry and eggs this year should plan to use a considerable part of the increase on their own tables.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That are Helping American Farmers to Feed Nations

Plan for Big Cotton Harvest.

Federal farm-help specialists of the United States Department of Agriculture in the cotton States met July 18 and 19 in Birmingham, Ala., to exchange ideas and make plans to aid in assuring sufficient labor for the harvesting of the South's big crop of cotton, which, according to present indications, will be one of the largest ever grown. Prof. G. I. Christie, Assistant to the Secretary of Agriculture, who is supervising the farm labor activities of the department under Assistant Secretary Ousley, explained the labor policy of the department. Ideas developed at the conference are expected to help in the general cotton harvest, which will begin about August 15.

More than 6,200 Field Workers.

More than 6,200 county agent workers—6,216, to be exact—were at work July 1 in the United States carrying out the food production and conservation program, according to a report recently issued by the United States Department of Agriculture. Of this number the greatest percentage are in emergency work helping the great land army to produce food for this Nation and our allies. There are 2,011 in the emergency county agent work, 1,617 in the home demonstration work, and 1,020 in the boys' and girls' club work. In the 33 northern and western States there are 1,596 county agent workers in both the regular and emergency work. In the southern States there are 1,405 county agent workers, of which 142 are colored local agents. There are a total of 803 home demonstration workers in the North and West and 1,231 in the South. In the boys' and girls' club work 1,096 men and women are employed in the northern and western States and 85 in the southern States.

Forest Service Helps Meat Supply.

Range has been provided on the Black Hills National Forest, S. Dak., for 2,500 yearling steers from drought-stricken sections of Arizona. Fifty-four cars were required to carry the cattle, and it was necessary to leave behind a large number of stock which were too weak to travel. This action is in line with the policy of the Forest Service looking to the fullest utilization of the national forest range during the war emergency. Fences to prevent cattle drifting from ranges will be constructed and watering places will be improved on the Black Hills area by the Forest Service and the owners of the stock in cooperation. It is planned to feed the stock next winter, and after a second season on the range, to ship them direct to market.

War Kitchen for Southern Agents.

A war kitchen established in New Orleans last August has led to the equipment of several hundred home demonstration kitchens in other parts of the South. They may be found in 78 of the 87 cities where home demonstration work has been introduced, Houston, Tex., having 8 of them. Out in the counties, in the small towns and county seats, rooms in courthouses, schoolhouses, and various public buildings have been converted into food centers for the use of home demonstration agents. State agents in Arkansas and Mississippi report that there are demonstration kitchens established in more than half the counties in each of these States.

Cattle Dipping Breaks Records.

Reports to the Bureau of Animal Industry disclose that May set a new record in the work of eradicating the cattle-fever tick. In that month the number of cattle dipped was 5,468,600, the largest number reported in any one month since the campaign began actively in 1906. The big figures are believed to indicate the unanimity with which southern live-stock raisers have joined in the fight to free the South from the tick by 1921. The number of dipping vats available in May was 25,911 and 338 Federal inspectors, 284 State inspectors, and 1,426 county inspectors supervised the work.

Cull the Poultry Flock.

To encourage the production of better poultry, specialists of the United States Department of Agriculture are now conducting a campaign urging all poultry growers to cull their flocks at this season and keep only the best laying hens for next year. In this work they are urging poultry departments of agricultural fairs, county agents, and poultry breeders to take a greater interest in poultry shows and poultry displays at fairs. In the present emergency, to use to the fullest extent the power of popular exhibitions of poultry to create new interest, it is more important to have small shows wherever an exhibit can be brought together than to have what poultrymen are accustomed to call quality shows.

Vegetable Protein for Chickens.

Among the poultry experiments now being conducted on the Government farm at Beltsville, Md., are a number of feeding tests in which the value of vegetable protein is being compared with beef scrap. One pen of chickens fed a mash containing 20 per cent beef scrap produced in five and one-half months an average of 63 eggs per hen. Another pen fed a mash consisting of 10 per cent peanut meal and 10 per cent beef scrap produced an average of 53.4 eggs per hen during the same period. The hens in a third pen which were fed a mash consisting of 10 per cent soy-bean meal and 10 per cent beef scrap averaged 44.4 eggs for the period. In other pens cottonseed meal and velvet-bean meal were fed as part substitute for beef scrap with the result that the hens produced a fair egg yield, though not as high as the hens in the first pen mentioned.

Preparing Department Exhibits.

Bureaus of the United States Department of Agriculture are preparing their exhibit material for display with the combined Government exhibits which in August will "open" on five circuits of approximately 35 State fairs and expositions. Nearly all phases of Department of Agriculture work will be treated in order that the public may become better acquainted with it and be enabled to make wider use of the department's service. War activities will be stressed—in fact, the big idea will be increasing the production of food to back up the boys "over there," and showing how it can be done.

To Issue Figures on Hair Supply.

A survey of stocks of hair in the United States, taken under date of June 30, is about completed and figures will be issued by the Bureau of Markets showing total stocks and their location on that date of horsehair, cattle hair, hog bristles, rabbit hair, alpaca, mohair, and camel hair.

Less Meat, More Butter, in Storage.

Heavy decreases in meat stocks held in cold storage since June 1 are reported by

the Bureau of Markets while stocks of butter are increasing. Decreases are shown for all classes of poultry. The movement of eggs from storage has begun, a month earlier than usual, and since July 1 more eggs have been taken out of storage than have been received by cold-storage plants.

Volunteer Gardeners Organize Women.

Women's garden work in Fergus County, Mont., has been organized in a most effective way by the county home demonstration agent. Volunteer gardeners agree to form and keep interested a group of 10 women in garden work. The agent meets the leaders and they in turn teach the work to the women in their respective groups. In Lewistown alone there are over 20 of these leaders which means 200 "organized gardens" in that community. This plan is being followed in all the towns in the county.

Farm Home Study Tours.

Farm home study tours have become popular in Yamhill County, Oreg. They are arranged by the home demonstration agent and the county agricultural agent to encourage better country homes, lighting, water systems, labor savers, interior arrangement, and decorations, sanitation, and conservation. The tours are made by automobile, five or six farm homes being visited each day. As many as 150 farm women and men have gone on one of these tours. Short talks are made at each stop by the agents, and the host and hostess are introduced and give briefly the method and cost of installing the particular convenience under consideration at that place.

Sheep on Idle Cut-Over Lands.

Cut-over lands in parts of Minnesota, Michigan, West Virginia, Louisiana, and other States which have heretofore been idle, are now being utilized for grazing sheep and are thus being made to do what they can to contribute to the Nation's food supply. Sheep extension specialists of the Department of Agriculture are cooperating with departments of agricultural extension in 12 States. Sheep raisers have been aided in securing sheep from western ranges.

Management of Sheep Range Studied.

One thousand breeding ewes, the experimental flock at the United States sheep experiment station at Dubois, Idaho, have recently been moved to the Targhee national forest reserve for summer and fall grazing. They will be kept under practical range conditions and the adaptability of range for different types of sheep will be studied and experiments will be conducted to determine economical methods of utilizing range. Investigations will also be made relative to the practicability of running sheep loose in fenced pastures as compared with the "herding" method which is now generally practiced. The station at Dubois was established during the past year.

Central Alabama Raises More Stock.

Reports just received in the Office of Extension Work in the South from one district comprising 10 counties in central Alabama show that during the past year there have been shipped from this territory 681 cars of cattle and 373 cars of hogs. These shipments all left from territory which until a few years ago was practically an all-cotton section. In sending in the report the district demonstration agent says: "These shipments represent live stock grown in the district, as practically nothing has been shipped in for feeding." The 10 counties are: Autauga, Dallas, Elmore, Hale, Lowndes, Lee, Montgomery, Macon, Marengo, and Bullock.

Agents Conduct Milk Campaigns.

Intensive milk campaigns have been conducted by home demonstration agents in many counties in New York. The purpose of the campaigns is to encourage women to serve more milk and to make more milk dishes for their families. Many graphic exhibits have been prepared and displayed in store windows and libraries. During one month 2,427 women were given direct instruction in the value and use of milk through demonstrations given by the agents.

Shipping Stock by Boat.

Mississippi River boats hauled more live stock to the Independent Stock Yards at St. Louis during the first half of this year than they did in a corresponding period last year, thus relieving materially rail transportation, according to a report of the Bureau of Markets of the United States Department of Agriculture. More than one-third of the receipts of cattle and hogs at the Independent Yards in the last four months came by the river route and now practically all the Mississippi River boats using St. Louis as a terminal carry some live stock. While boat rates are a trifle higher than rail rates the stock reaches the market in better condition and shows less shrinkage. The loss in dead and crippled animals is small compared with the loss in shipments made by rail. Usually less than carloads are shipped by individual owners and a system of tagging permits the stock of more than one man to be confined in the same pen.

Meat can be produced from poultry more quickly than from any other source.

SUCCESS IN POULTRY SHOWS DEPENDS ON GOOD CONDITION

Birds Must Be Prepared With Care If They Are to Make High Scores.

Lack of Attention to Details Often Results in Failing to Place Stock Which Has Real Quality—Look for Disqualifications.

Preparing or conditioning poultry for the showroom is of vital interest to every breeder who possesses some good specimens and aspires to become a successful exhibitor. Very often, because of lack of preparation, the best bird in a class is unplaced.

The first thing after selecting the birds nearest the standard requirements in shape, color, and size is to look for disqualifications, the most common of which are side sprigs, stubs, wry tails, squirrel tails, crooked backs, etc. The birds should be placed in training cages or pens similar to those used at the poultry shows. The bottoms of the cages should be covered with a litter of shavings or cut straw which can be removed frequently.

Use Training Pens.

Begin a few weeks before the show and take the birds from their roosts every evening and place them in the separate training pens for the night. At first leave them quiet for an hour or two and then, by lantern light, stroke each bird quietly over the back and from the throat to the thighs. After it is accustomed to the hand, use a small thin stick and teach it to pose in the desired position. With patience and kind treatment it is surprising how quickly birds learn to do what is expected of them. This training is really the most important part of conditioning, as nothing is more discouraging to a judge than to have a bird dash about the cage in a frightened manner and stick its head in a corner.

All white birds should be washed; in fact, washing improves any of the long-feathered varieties.

Importance of Feeding.

Feeding is also a very important point to consider. For the small-combed varieties a feed of oats, corn, and feed wheat, with a light feed of wet mash at midday, is very good. For some of the large-combed breeds, such as Leghorns and Orpingtons, do not use meat, as it forces the comb to grow too large and may cause it to turn over. A feed of bread, soaked in milk once a day helps the plumage wonderfully. All birds should have plenty of grit and a little green feed. Chopped onions help to keep them in good condition.

Just before sending the birds to the show their combs, legs, and feet should be sponged

with clean water and dried with a soft cloth. A little vaseline on the combs and faces greatly improves their appearance.

Another point that many breeders do not understand is the proper shipping and tagging of their birds in suitable carriers. Some use entirely too small crates or coops, and others use large, heavy boxes that can not be handled by one man. The express employees handle them rather roughly and the birds come to the show with feathers broken and in bad condition. Always be sure that the tags with your name and that of the poultry show and the destination are securely fastened on the crates. It is well also to have a number on the tag to correspond to the leg band on your fowl. In that way you will be reasonably sure to have your birds returned in the coops in which you shipped them.

MATURE APPLES KEPT COOL AND VENTILATED WILL NOT SCALD

The Office of Fruit Disease Investigations gives the following instructions to prevent apple scald:

Green apples scald worse than well-colored ones. Pick only when mature. Make more than one picking when practicable.

Keep Cool.

In the orchard.—Keep the picked apples as cool as possible. Low temperatures are desirable, but all cooling is valuable.

Keep the apples in the shade. Open packing sheds and storehouses at night. Ship promptly to market or storage.

In transit.—Precool the fruit and ship in iced refrigerator cars when practicable.

In storage.—Get the apples to cold-storage or air-cooled houses as soon as possible after picking.

Open packages cool more quickly than tight ones.

Ventilate.

In the orchard.—Do not hold warm apples in headed barrels.

In case of delay keep the fruit in open crates if possible.

Do not hold in large, close piles.

Give the packing sheds and storerooms plenty of air, especially night air.

In transit.—Give the apples as much air as is practicable.

Delay of poorly cooled fruit in tight cars greatly increases scald and causes heavy losses.

In storage.—Apples scald less in boxes than in barrels and less in ventilated barrels than in tight ones, especially if the storage room receives considerable ventilation.

They scald less in well ventilated cellars and air-cooled storage houses than in unventilated commercial cold-storage plants, but the higher temperatures of the former are, of course, undesirable.

Storage plants that follow the practice of allowing fresh outside air to sweep through the storage rooms occasionally when weather conditions permit, report great benefit in the way of scald prevention.

For further information write your State agricultural experiment station or the United States Department of Agriculture.

County Agents, Cooperating, Help Solve Local Problems

Cooperation between the various county agents within a State is becoming more and more common, according to the United States Department of Agriculture. In many States these cooperative efforts clear through a State leader, but in others they are the result of voluntary efforts on the part of the individual agents themselves.

A recent instance of the latter type is shown in the following letter recently sent to several other agents in Nebraska by E. H. Davis, county agent at Greeley:

"I learned from outside reports that it is getting pretty dry in your county and that the pastures are getting short. Don't let any one ship young stock on account of shortage of pasture. Wheeler County has pasture that is going to waste, since it has had lots of rain the whole season through, and the grass is fine. The farmers in Wheeler County will be glad to have stock to utilize the grass. If I can be of any service to you along this line, write me."

Cooperation of this sort is meeting a very serious live-stock situation which threatens certain parts of the State because of drought.

Seed Men Pledge Entire Support To Increase Crops, Help Win War

The American Seed Trade Association recently in session in Chicago has pledged its support to the war program for food production in a telegram to Secretary Houston. Its resolution says that the association, "realizing the urgent and extraordinary need existing for tremendously increased production of seeds on account of the devastation wrought by the war in the principal European producing centers and the almost prostrated condition of transportation, preventing distribution, and further realizing fully the profound obligation thrown upon us, do hereby renew to the President of the United States and to the Secretary of Agriculture our pledge of our entire resources to win the war and so to increase our efforts in producing crops that we may stay the dread scourge of famine, and we pledge to this end unreservedly our money, our lands, and ourselves."

To this, Mr. Ousley, the Acting Secretary of Agriculture, replied as follows:

"I note with much satisfaction and greatly appreciate the renewal by your association of its pledge to the President and the Secretary of Agriculture of the entire resources of its members in the efforts to increase crop production. It will undoubtedly be necessary for the department to suggest from time to time changes of practice which are necessary to enable the agriculture of the country to meet war conditions. It is, therefore, gratifying to note that your association is prepared to meet such requests as are necessary in the public interest although individual sacrifice may be involved."

THE farm bureau is the recognized agency through which the State agricultural college and the United States Department of Agriculture will cooperate in all extension work in the county, whether that work be with farm crops, farm animals, or the problems of the home and community life.

Department Held Blameless For Bad Meats at Camp Travis

The United States Department of Agriculture has completed its investigation of the statement made and widely published some weeks ago that meats and poultry unfit for food had been sold or offered for sale for Army consumption at Camp Travis, and finds that the Federal meat inspection was not involved. This announcement is made by the department, because inquiries received indicate an impression that the reports reflected on its meat-inspection service.

The published statements were based partly on information given out by the Federal Trade Commission, but a letter from Commissioner Victor Murdock to Dr. John R. Mohler, Chief of the Bureau of Animal Industry, makes it clear that no blame attached to the meat inspection. Mr. Murdock says: "The question of meat contracted for by the Army and examined by your inspector at San Antonio is not at issue. No complaint was heard of the meats issued by the camp quartermaster at Camp Travis. * * * The meats referred to in the complaints * * * were offered to the camp through channels which do not have the benefit of Federal inspection * * *."

The loss of cattle and sheep due to poisonous weeds is very great. On the United States national forest ranges alone the loss in 1916 amounted to 6,648 cattle and 16,273 sheep, besides a number of horses, goats, and other animals.

STOCKYARD RECEIPTS OF FOOD ANIMALS INCREASED IN JUNE

Only Horses and Mules Showed Falling Off from Same Month in Preceding Year

Cattle, Hogs, Sheep, and Swine All Furnish Larger Shipments to Market as Compared with the Figures for 1917

Increases in the receipts of all classes of live stock, except horses and mules, at stockyards in 58 cities during June, 1918, as compared with June, 1917, are shown by the monthly report on live stock at stockyards, issued by the Bureau of Markets, United States Department of Agriculture. The increase in cattle receipts amounted to 29,602, or 1.7 per cent; the increase in hog receipts amounted to 153,905, or 5.5 per cent; and the increase in sheep receipts amounted to 173,470, or 14.3 per cent. Increases in cattle receipts in 56 cities for the half year ending June 30, 1918, as compared with the corresponding period for 1917 totaled 981,366, or 10.4 per cent. The corresponding figures for hogs show an increase of 1,748,043, or 8.1 per cent. A comparison of the sheep receipts for this six-months period with those for the first six months in 1917 shows a decrease of 192,155 or 2.6 per cent.

Increase in Shipments.

Increase in shipments of cattle, hogs, and sheep from 46 cities are shown also by the report. These were, respectively, 4, 22.8, and 23.2 per cent more in June, 1918, than in June, 1917. The increases in shipments from 47 markets for the first six months of 1918, as compared with the first six months of 1917, were 12.3 per cent for cattle, 16.1 per cent for hogs, and 9.6 per cent for sheep.

Reports for 44 markets for June, 1918, show that local slaughter of cattle was three-tenths of 1 per cent, and that local slaughter of sheep was 6 per cent more than in June, 1917. Slaughter of hogs decreased 1.7 during the corresponding period. The increase in local slaughter of cattle and hogs was 9.5 per cent and 5.6 per cent, respectively, and the decrease in local slaughter of sheep was 11.6 for the first half of 1918 as compared with local slaughter for the first half of 1917.

Stocker and Feeder Cattle.

Shipments of stocker and feeder cattle from 38 markets and sheep from 24 markets during June, 1918, totaled 321,298 and 193,769, respectively. This was a decrease of 3.6 per cent for cattle and an increase of 32.7 per cent for sheep as compared with June, 1917. Shipments of stocker hogs from 23 markets showed an increase of 100.1 per cent, the total for June, 1918, being 35,314. Shipments of stockers and feeders of all three kinds showed increases for the first six months of 1918 as compared with the first six months of 1917. The increase for cattle was 6.1 per cent, for hogs 77.4 per cent, and for sheep 48 per cent.

Receipts of horses and mules were 31.8 per cent lower in June, 1918, than in June, 1917, and shipments were 27.7 per cent lower. For the half-year periods the decrease for 1918 was 6 per cent for receipts and 4.7 per cent for shipments.

DEPARTMENT ANNOUNCES PLAN FOR LIBERTY WHEAT HARVEST IN 1919

(Continued from page 1.)

smaller than any crops since 1911, and, besides this, there was a greater demand for seed wheat and an increasing population.

Foreign Reserves Almost Exhausted.

Moreover, it must be borne in mind, says the department, that the carry-over in all the 10 importing countries of Europe was practically exhausted this year before the new harvest; that the normal consumption requirements of the exporting countries are increasing with the growth of population instead of diminishing; that some losses in storage and transit may be expected to continue, and that it is highly desirable that a surplus should be accumulated as insurance against partial crop failure next year. To provide for these additional requirements it is therefore extremely desirable that the maximum acreage of winter wheat recommended be planted by the farmers in the United States this fall.

A county farm bureau is an institution for the development of a county program of work in agriculture and home economics, and for cooperating with State and Government agencies in the development of profitable farm management and efficient and wholesome home and community life for man, woman, and child.

HOW THE STATES ARE ASKED TO INCREASE WINTER WHEAT

Acreage of winter wheat suggested for sowing in the fall of 1918, with data showing basis for the recommendations. States that have suffered from drought conditions are not asked to increase wheat acreage, but if generally favorable conditions obtain it is expected that increases will be shown in those States. In Michigan, Wisconsin, Minnesota, and South Dakota larger increase of winter wheat acreage is not suggested because of heavy increases suggested for rye:

State.	Acreage suggested, 1918.				Acreage sown 1917 (000's omitted).	Maximum acreage sown, 1913 to 1917.	
	Minimum (000's omitted).	Per cent 1917 acreage.	Maximum (000's omitted).	Per cent 1917 acreage.		Acreage (000's omitted).	Year.
New York	525	103	563	110	512	512	1917
New Jersey	101	102	104	105	99	99	1917
Pennsylvania	1,575	103	1,683	110	1,530	1,530	1917
Delaware	153	105	160	110	146	146	1917
Maryland	774	105	811	110	737	737	1917
Virginia	1,536	105	1,609	110	1,463	1,463	1917
West Virginia	373	105	390	110	355	355	1917
North Carolina	1,238	105	1,297	110	1,179	1,179	1917
South Carolina	283	105	297	110	270	270	1917
Georgia	449	105	514	120	428	428	1917
Ohio	2,340	109	2,500	117	2,145	2,145	1917
Indiana	2,920	110	3,100	117	2,645	2,820	1914
Illinois	2,934	113	3,200	123	2,602	2,934	1914
Michigan	941	100	941	100	941	963	1914
Wisconsin	112	100	112	100	112	112	1917
Minnesota	89	100	89	100	89	89	1917
Iowa	600	131	900	196	459	525	1914
Missouri	3,100	108	3,235	113	2,875	2,875	1917
South Dakota	182	111	182	111	164	182	1916
Nebraska	3,674	117	3,762	120	3,135	3,674	1914
Kansas	9,479	100	9,479	100	9,479	9,479	1917
Kentucky	1,047	110	1,142	120	952	968	1914
Tennessee	924	110	1,010	120	840	901	1914
Alabama	151	105	158	110	144	144	1917
Mississippi	40	110	45	125	36	36	1917
Texas	1,730	107	1,730	107	1,622	1,730	1915
Oklahoma	3,264	100	3,400	104	3,264	3,400	1916
Arkansas	302	105	317	110	288	288	1917
Montana	775	100	775	100	775	775	1917
Wyoming	88	105	92	110	84	84	1917
Colorado	485	105	508	110	462	462	1917
New Mexico	275	102	283	105	270	270	1917
Arizona	46	105	48	110	44	44	1917
Utah	256	105	275	113	244	256	1915
Nevada	5	100	10	200	5	23	1915
Idaho	377	125	405	134	302	405	1914
Washington	754	180	850	200	422	1,156	1914
Oregon	590	105	692	123	562	692	1914
California	513	105	538	110	489	489	1917
United States	45,000	107	47,206	112	42,170	44,640	

Farm Implements and Equipment Adopted by War Industries Board

The War Industries Board authorizes the following:

"The Conservation Division of the War Industries Board has completed a comprehensive investigation of the general farm implement and farm operating equipment industry and, after numerous preparatory meetings, a detailed schedule of types and sizes of the principal class of farm implements and farm operating equipment to be manufactured during the war period, has been formally adopted by all the interests involved."

Under the elimination program approximately 3,000 surplus types of plows and tillage implements have been discontinued. For example, out of 303 types of plows only 65 will be manufactured after December 31, 1918. Of over 300 types of corn planters and drills only 10 will be manufactured and 107 types of harrows have been reduced to 44.

Members of the industry prepared the initial program of conservation at the request of the War Industries Board. The final schedule was completed only after carefully taking into consideration the actual needs of the farmer, as well as various styles of farm equipment that might be termed "lesser essentials."

Will Reduce Stocks.

The eliminations made effective by this program will materially reduce the size of stocks carried and the capital invested, as well as volume of transportation necessary to carry the agricultural implements to the farmer. Production of the remaining types of implements will also be materially increased as a matter of course. A large amount of steel and iron will be released automatically for war purposes and other necessary industries by the reduction of stocks carried by factories, jobbers, and other distributors.

In addition to the reduction in styles and, consequently, of stocks carried, concentrating efforts on fewer types is expected to work toward stabilizing the cost to the farm without hardship on the producer.

Further elimination of unnecessary types and additional standardization is being worked out by various committees representing different branches of the industry in connection with the War Industries Board. This plan is similar to those that are being put into effect in numerous other industries by the Conservation Division. The savings in labor, capital, and material thus effected with the wholehearted support of all parties interested will contribute largely to promoting the general war program.

Schedule for the Manufacturers of Grain Drills Seeding Machines, etc.

This schedule is to become effective November 1, 1918, no eliminated machinery to be manufactured after this date, and no additional material for eliminated lines to be ordered after July 15, 1918, except such as may be necessary to even up stocks on hand for the 1918 fall trade.

1. *Drills.*—Each manufacturer to restrict his output of the following drills to the sizes noted:
   - (*a*) Plain 6-inch drills to 12–6, 16–6, 20–6, and 24–6.
   - (*b*) Plain 7-inch drills to 10–7, 11–7, 12–7, 14–7, and 18–7.
   - (*c*) Plain 8-inch drills to 8–8, 10–8, 12–8, and 16–8.
   - (*d*) Low-down press drills in 6-inch to 20–6.
   - (*e*) Low-down press drills in 7-inch to 12–7, and 16–7.
   - (*f*) Low-down press drills in 8-inch, all sizes to be eliminated.
   - (*g*) Fertilizer drills in 6-inch, all sizes to be eliminated.
   - (*h*) Fertilizer drills in 7-inch to 9–7, 10–7, 11–7, and 12–7.
   - (*i*) Fertilizer drills in 8-inch to 6–8, 8–8, and 10–8.
2. *Seeders.*—Each manufacturer to restrict his output of these seeders to three sizes, viz, 12-bar, 16-bar, and 24-bar.
3. *Sowers.*—Each manufacturer to restrict his output of these sowers to two styles, viz, 11-foot wide track and 11-foot narrow track.
4. *One-horse drills.*—Each manufacturer to restrict his output of these drills to 5-disk and 5-disk fertilizer types.
5. *Agitator wheel seeders.*—The manufacture of agitator wheel seeders to be discontinued.
6. *5-inch drills.*—The manufacture of 5-inch drills to be discontinued.
7. *Broadcast fertilizer distributors.*—Each manufacturer to restrict his output of these distributors to one size, viz, 8-foot.
8. *Land measures.*—Land measures to be eliminated from all sowers.
9. *Concavity of disks.*—The following description of disks to be recognized as standard and all disks manufactured after July 15, 1918, to conform to this standard, viz, size 13-inch, gauge No. 13, concavity three-fourths inch.
10. *Polishing concave disks.*—The polishing of concave disks to be optional with each manufacturer.

THERE IS NO SUBSTITUTE FOR BORDEAUX MIXTURE

Methods of Calculating the Value of Commercial Preparations

Farmers Should Make Sure of Fungicidal, Spreading, and Sticking Qualities of Spray Material Used Against Plant Diseases

As a result of the present high price of copper sulphate, the principal active ingredient in Bordeaux mixture, many farmers who are compelled to combat such diseases as late blight of potato, black rot of grape, and bitter rot and blotch of apple, are asking the United States Department of Agriculture "What can we use as a substitute for Bordeaux mixture?" There is no substitute, according to specialists of the department—Bordeaux mixture is the only reliable preventive for such diseases. Methods of calculating the value of commercial Bordeaux mixtures have, therefore, been published in Farmers' Bulletin 994, a copy of which can be obtained from the department at Washington.

Calculating Amount of Copper.

Every package of commercial Bordeaux mixture carries a label on which is given its content of copper. This is usually given in percentage, and by multiplying this percentage by 3.93 the result gives the amount of crystalized copper-sulphate, the bulletin explains. If the percentage is given in terms of copper oxid, multiply by 3.14; if in copper hydroxide, multiply by 2.56. In order to calculate the copper sulphate when diluted ready for application, multiply the number of pounds of the concentrated Bordeaux mixture to be added to 50 gallons of water by the percentage of copper sulphate.

Physical properties, such as adhesiveness, texture, spreading quality, and rate of settling, also are important factors in determining the efficiency of Bordeaux mixtures. A preparation containing a large amount of copper, but coarse and granular in texture, with poor spreading and sticking qualities, can not be expected to give good results in cases where a good fungicide is required. To test the physical properties, dilute the mixture and place a small quantity in a glass tube, and watch the speed with which the solids settle to the bottom. If the copper is held in suspension for a great length of time the physical properties of the mixture may be regarded as good.

In order to reduce the cost of spray material some growers are using a weaker mixture than is commonly advised for the various diseases which require Bordeaux treatment.

When the disease attacks are mild, a Bordeaux mixture containiug considerably less copper sulphate than is commonly advised may give very good control, provided its physical properties are good and it is thoroughly applied, the bulletin states. When infection is severe, weak mixtures should be avoided, for the resultaut loss when they are used may much more than offset the amount saved by using the proper strength. Spraying is a question of insurance and the grower must decide whether he wishes to insure his crop wholly or only partially by the use of Bordeaux mixture containing sufficient copper.

These Plants and Materials Are Poisonous—Keep Live Stock Away

Many sheep and cattle are lost every year from eating poisonous plants and other material. In many instances a little foresight on the part of the owner would have prevented losses. To cite one specific plant, most stockmen in the eastern part of the country know that laurel is poisonous, and yet they will pasture their animals in a woodland pasture in spite of the fact that laurel abounds. Sometimes a few, at other times many, animals are poisoned.

Other poisonous plants abound in both the eastern pastures and the western grazing lands, many of which are definitely known and easily recognized. A little precaution through fencing and selecting pastures would materially lessen the deaths due to plant poisoning. Larkspur, lupine, water hemlock, darnel grass, wild cherry, loco, white snake root, wilted sorghum, and oak brush (shiunery oak) are the more common plants which exact a heavy toll.

Common Substances Poisonous.

Inorganic poisoniug of farm stock is also far from being of rare occurrence. Common salt is definitely known to be very poisonous to hogs and chickens in comparatively small quantities. Soap powder in swill has been the cause of death of swine. Antiseptic tablets and rat poisons also have caused deaths amoug farm animals. Patent rat pastes, and even fireworks, have been eaten by fowls, which later died from the effects of phosphorus poisoning.

Recently numerous cases of lead poisoning of cattle have drawn attention to what is probably one of the most fertile and avoidable causes of loss. Many of the constituents of paint possess poisonous properties, and it seems that cattle delight in licking freshly paiuted fences, advertising signs erected in the pastures, gate posts, mangers, and stalls, and wiping with their long tongues the paint cans aud white-lead kegs which have been carelessly left exposed. The result in most cases of this kind is death due to lead poisoning. Such deaths are certainly avoidable, and it is much more profitable to keep the cattle away from freshly painted surfaces than to lose a number of cows or steers worth $100 or more apiece.

Number of Counties with County and Home Demonstration Agents, 1914 to 1918

The growth of county-agent activities under the development of extension work of the States Relations Service is graphically shown in the following tabular statement. An analysis of the figures shows, in general, that the work was earlier developed in the Southern States, but that Northern and Western States have made rapid strides in organization within the five years shown. A particularly striking feature is the great advance from 1917 to 1918, under the stress of emergency war conditions. The proportionate increase in the number of women agents has been relatively more than twice as great as the increase in men agents; moreover, only 15 of the States had women agents in 1914, while no State is without them now.

State.	Agricultural counties.	Counties with men agents.					Counties with women agents.				
		July 1, 1914.	July 1, 1915.	July 1, 1916.	July 1, 1917.	July 1, 1918.	July 1, 1914.	July 1, 1915.	July 1, 1916.	July 1, 1917.	July 1, 1918.
Alabama	67	67	67	65	62	66	18	19	27	28	67
Arizona	14	.....	3	6	7	11	.....	.....	.....	.....	3
Arkansas	75	45	52	53	61	68	15	20	31	47	65
California	45	4	11	13	17	33	.....	.....	.....	.....	24
Colorado	35	13	13	19	16	29	.....	.....	2	.....	7
Connecticut	8	1	6	7	8	8	.....	.....	.....	5	8
Delaware	3	.....	3	3	2	3	.....	.....	.....	1	3
Florida	54	25	36	33	37	53	24	27	28	35	54
Georgia	152	80	81	83	117	120	29	48	45	57	125
Idaho	30	2	3	7	11	27	.....	.....	.....	.....	24
Illinois	102	14	18	20	22	53	.....	.....	1	.....	88
Indiana	92	27	31	32	40	83	.....	.....	.....	.....	22
Iowa	99	9	11	16	26	97	.....	.....	.....	.....	96
Kansas	105	9	39	56	53	67	.....	.....	.....	.....	14
Kentucky	120	28	39	47	45	90	9	19	24	27	96
Louisiana	64	41	43	43	42	58	13	13	18	20	33
Maine	16	.....	3	4	9	16	.....	.....	.....	.....	14
Maryland	23	8	13	16	23	22	5	6	10	13	22
Massachusetts	13	1	10	9	11	13	.....	.....	1	6	12
Michigan	84	11	17	22	30	71	.....	.....	1	1	24
Minnesota	86	27	23	19	16	85	.....	.....	.....	.....	39
Mississippi	81	48	49	44	53	79	33	33	32	49	71
Missouri	114	13	15	14	15	71	.....	.....	.....	.....	48
Montana	41	4	8	7	12	23	.....	.....	.....	.....	18
Nebraska	93	5	8	9	8	79	.....	.....	.....	2	30
Nevada	15	.....	.....	.....	6	8	.....	.....	1	.....	10
New Hampshire	10	1	5	8	9	10	.....	.....	.....	2	9
New Jersey	19	4	7	11	10	17	.....	.....	1	.....	8
New Mexico	26	.....	8	9	11	25	.....	.....	.....	.....	11
New York	57	25	29	36	41	56	.....	.....	1	3	38
North Carolina	100	51	64	65	69	91	27	34	44	48	72
North Dakota	51	17	15	15	17	38	.....	.....	.....	2	33
Ohio	75	8	10	12	20	63	.....	.....	1	.....	13
Oklahoma	77	40	56	59	62	77	19	24	22	23	59
Oregon	35	10	12	13	14	24	.....	.....	.....	.....	15
Pennsylvania	67	10	14	22	45	53	.....	.....	1	.....	48
Rhode Island	5	.....	.....	4	4	5	.....	.....	.....	.....	4
South Carolina	45	43	43	42	40	43	21	24	31	36	44
South Dakota	66	3	5	11	13	59	.....	.....	.....	.....	42
Tennessee	96	36	38	48	57	91	18	24	31	49	94
Texas	250	98	99	90	92	178	26	27	38	31	67
Utah	28	8	10	8	15	28	.....	.....	2	2	14
Vermont	14	7	9	11	11	13	.....	.....	.....	.....	7
Virginia	100	53	55	51	53	75	17	22	25	38	52
Washington	37	7	10	13	22	34	.....	.....	.....	.....	22
West Virginia	55	13	27	29	45	48	5	10	12	12	33
Wisconsin	71	9	12	13	22	59	.....	.....	.....	.....	17
Wyoming	21	3	6	8	13	15	.....	.....	.....	.....	5
Total	2,936	928	1,136	1,225	1,434	2,435	279	350	430	537	1,715

In many areas of the South Atlantic and Gulf Coast States, where nut grass abounds, some farms are so badly infested with this weed that their value is reduced almost half, and cases can be cited in which farms have actually been abandoned because of the presence of nut grass.

American dietitians have made excellent bread by substituting as high as 25 per cent of rice for wheat flour and have obtained a white yeast bread of excellent flavor.

Weeds are iujurious and detrimental in so many ways that it is extremely difficult to calculate the damage which they cause. This damage, however, is much greater than is apparent. One big fact regarding weeds is that they increase in numbers each year until their presence is accepted as the normal condition and their detrimental effect overlooked.

When Dairy Cows Fight Flies Their Milk Flow Decreases

Decrease in milk production, losses of live weight, discontent, and unrest are promoted among herds during the summer months as the consequence of the activities of the common stable fly and horn fly. An average decrease in milk flow of from 25 to 40 per cent is not uncommon as the direct result of flies and the extreme heat of summer. Under existing conditions with a keen demand for dairy products and with prices at a high mark, it is highly desirable that every dairy farmer exercise a maximum of care and caution to eliminate the fly evil, according to dairy specialists of the United States Department of Agriculture. Remedies are darkened barns, stable sanitation, and spraying with fly repellents. Thorough treatment of manure, its daily removal from the barn to a distance, the use of hanging burlap or other devices in the barn doors to brush flies from the animals, baited fly traps placed outside the barn, and closed milk pails are among the necessary requirements for keeping flies away.

The stable fly, armed with biting mouth parts, punctures the hide of cows and sucks their blood, while the horn fly locates at the base of the horns, where it irritates the skin and causes the formation of congestions which resemble mosquito bites. Both species of these flies propagate rapidly and require only from 10 to 16 days in which to hatch their eggs and produce new hordes of pests which operate for cow discomfort.

Stabling and Spraying.

The stabling of cows during the heat of the day in cool, darkened barns is recommended as one of the best means of eliminating the fly evil, provided adequate labor is available to keep the stables clean and sanitary. As manure provides an ideal breeding material for flies, it is imperative that none of it be allowed to accumulate in or around the stable. Spraying the animals with some fly repellent, such as kerosene emulsion, is an effective remedy, but requires repeated applications. Repellents should be used with great care, as no good one has yet been devised which is not likely to slightly taint the milk. It is best to spray the cows just before milking each evening, using a hand spray pump or applying it with a brush or a sponge. There are some antifly solutions on the market which are more or less effective. Most of them consist of some coal-tar product combined with either fish oil, oil of tar, or rosin. Lime sprinkled about the barn on manure is also useful in destroying flies.

To prepare kerosene emulsion—one of the cheapest and best homemade fly repellents—dissolve one-half pound of yellow soap in a gallon of soft water heated to the boiling point, and with this combine 2 gallons of kerosene in a barrel where the solution can be churned vigorously. Dilute this mixture with 6 gallons of water. This amount of emulsion is sufficient for spraying 100 cows and should be prepared only as needed. When smaller amounts are required they should be prepared in the proportions given.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, R. A. PEARSON.

[1] Assistant to the Secretary, ALONZO E. TAYLOR.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

[1] Assistant to the Secretary, G. I. CHRISTIE.
Mr. Christie, under the immediate supervision of Assistant Secretary Ousley, will direct the activities of the department in connection with the farm-labor problem.

[1] Assistant to the Secretary, WILLIAM WALLACE MEIN.
Mr. Mein is the immediate representative of the Secretary of Agriculture in the discharge of the duties imposed upon him by the President's proclamation of February 25, 1918, with reference to licensing the importation, manufacture, storage, and distribution of fertilizers and fertilizer materials.

[1] Assistant to the Secretary, JUNIUS F. COOK.
Mr. Cook acts as the immediate representative of the Secretary in the execution of the powers conferred upon him by the President's proclamation of May 14, 1918, with reference to the licensing of the farm-equipment industry.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. SPILLMAN, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals; and experiments in fur farming.

Office of Public Roads and Rural Engineering, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act.

Division of Publications, E. B. REID, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

UNITED STATES DEPARTMENT OF AGRICULTURE

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WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919